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Attitude Change:
An Interpersonal Replication of the
Double Forced Compliance Paradigm

by

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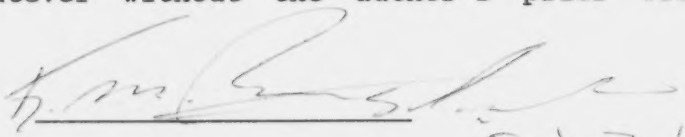

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled ATTITUDE CHANGE: AN INTERPERSONAL REPLICATION OF THE DOUBLE FORCED COMPLIANCE PARADIGM, submitted by KHEIRA M. BENSALAH in partial fulfilment of the requirements for the degree of Master of Arts.

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Date Oct. 6/93

Dedication

I wish to dedicate this thesis to my mother, Helga Bensalah, my brother, Karim Bensalah, my sister, Susan Bensalah, and of course my friend Dave Pierce. Thanks for your support and understanding.

Abstract

This study reports the applicability of self perception theory to the double forced compliance situation. The effect of sequence of actions (i.e. one action affirming another) and initial attitude were examined on observer's conclusions about a smoker's attitude. The design was a 2 X 3 factorial with two levels of initial attitude (5 or 15 cigarettes) and three levels of the smoker's actions (abstain, say-easy, or correspondent-actions). A separate control group also was included. Observers were N=210 undergraduates who viewed videotapes of a heavy or light smoker. The smoker was paid to either abstain from smoking, to tell another person that it is easy or to abstain and to say that it is easy. Results showed that observers conclusions about attitudes are enhanced if an action is preceded by a separate affirming action. In addition, observers inferred a stronger initial attitude in favor of smoking when the subject smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day. This difference in initial attitude did not affect the observers' conclusions about the actor's subsequent attitude. The observers conclusions about the smoker's attitude towards smoking were consistent with the attitude change shown by the actual smokers in Joule's (1991b) dissonance experiment. Apparently, sequence of actions and communicator credibility, not dissonance, accounts for attitude change in Joule's double forced compliance situation.

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Table of Contents

Page

INTRODUCTION 1

Dissonance & Double Forced Compliance 1

Self-Perception & Double Forced Compliance 3

Effects of Initial Attitude & Double Forced Compliance 8

METHOD 12

Subjects 12

Apparatus & Setting 12

Procedures 12

Design 16

Dependent Measures 17

Manipulation Check Measures 18

RESULTS 20

Manipulation Checks 20

Number of Cigarettes 20

Abstained from smoking 20

Convincingness of communication 21

Effects of sex and smoking history 21

Effects of number of cigarettes smoked on pre-test ratings 23

Pre-test Correlations 23

Ease of Abstaining 23

Ease of Quitting 24

Hours without a cigarette 25

Effects of Initial Attitude and Sequence of Actions on Post-test Ratings . 26

Post-test Correlations 26

Ease of abstaining 26

Ease of quitting 29

Hours without a cigarette 31

Credibility of Communication 32

DISCUSSION 34

REFERENCES 47

REVIEW OF THE LITERATURE 50

Introduction 50

Cognitive dissonance and forced compliance 50

Methods of forced compliance 51

Dull and Boring Task 52

Deprivation 53

Writing a counter-attitudinal essay 54

Speeches 56

Bem's self perception theory 58

Communicator credibility and self persuasion 59

Bem's interpretation of Festinger & Carlsmith's study (1959) 62

Criticism of Bem's method - Initial Attitude 64

Bem's response to this criticism 66

Dissonance and Double Forced Compliance 68

Sequence of Actions vs Dissonance Reduction 72

Conclusion 74

LITERATURE REVIEW REFERENCES 76

APPENDICES 80

List of Appendices

Page

Appendix 1: Videotape Scripts 80

A. Corresponding-actions condition 80

B. Abstain condition 88

C. Say-Easy condition 94

D. Control condition 101

Appendix 2: Preliminary Survey 104

Appendix 3: Initial Survey 105

Appendix 4: Post Survey 107

A. Correspondent-actions Condition Post Survey 107

B. Abstain Condition Post Survey 110

C. Say-easy Condition Post Survey 112

D. Control Condition Post Survey 115

Appendix 5: Pretest Results 116

Appendix 6: Tables 117

List of Tables

Table

1. Distribution of observers by condition who passed all manipulation checks. 40

2. Ease of abstaining means and standard deviations on pre-test and post-test ratings 41

3. Ease of quitting means and standard deviations on pre-test and post-test ratings. 42

4. Number of hours the subject can go without a cigarette means and standard deviations on pre-test and post-test ratings. 43

List of Appended Tables

Page

Table

5. Repeated measures analysis of how difficult it is to abstain from smoking by treatment group 117

6. Repeated measures analysis of how difficult it is to quit smoking by treatment group 118

7. Repeated measures analysis of how many hours the subject could refrain smoking without feeling a deep need by treatment group. (N=189) 119

List of Figures

Figures Page

1. Mean pre-test and post-test ratings of how easy it is to abstain from smoking by sequence of actions 44

2. Mean pre-test and post-test ratings of how easy it is to quit smoking by sequence of actions 45

3. Mean pre-test and post-test ratings of how many hours the actor can go without a cigarette by sequence of actions 46

INTRODUCTION

Research on attitude change suggests that people draw conclusions about their attitudes from their behavior (Bem, 1965, 1967, 1970). Observers also use a person's actions to infer the actor's attitudes. The research hypothesis is that drawing conclusions about attitudes is enhanced if an action is preceded by a different action that affirms the first. This is the case for a person reflecting on his own behavior and an observer. For example, a person who says that it is easy to abstain from smoking is likely to believe this about himself when the statement has been preceded by a successful act of abstaining. An observer who sees the person say "it is easy to stop smoking" also will find the smoker more credible if making the statement has been preceded by actually abstaining. That is, the corresponding actions of "doing X" and "saying X" together result in a strong conclusion about attitude (e.g., the belief that it is easy to abstain) for both actors and observers.

Dissonance & Double Forced Compliance

Recently, Joule (1991b) conducted an experiment to change a smoker's attitude. The attitude in question was the smoker's belief that he could stop smoking. Joule found that smokers believed that it was easier to stop smoking after they were induced to: 1) abstain from smoking for a time, and 2) tell another person that it was easy to stop. Thus, smokers were given an experimentally created history of two counter-attitudinal acts: the act of actually abstaining from smoking and the act of telling someone else it was easy to do so. Both actions

were counter-attitudinal because a long-term smoker does not usually abstain and is unlikely to tell someone else that it is easy to do so. Smokers in this experiment changed their attitudes about smoking more when they performed the two counter-attitudinal acts (abstain and saying it was easy to abstain) than when they performed either of these actions alone.

Joule's findings can be interpreted from two perspectives, the theories of cognitive dissonance and self-perception. The first theory is cognitive dissonance (Festinger, 1957). From this perspective, people change their attitudes when their actions are inconsistent with their current beliefs. Inconsistency between actions and attitudes gives rise to psychological tension or dissonance, and the person is motivated to reduce the dissonance. One way to reduce dissonance is for people to change their attitudes to make them consistent with their actions. Thus, a heavy smoker who is induced to temporarily abstain and to persuade someone else about the ease of abstaining may convince himself that he is not committed to smoking and could even become a non-smoker. That is, dissonance should be greater when smokers perform two counter-attitudinal actions than either action alone. This is because each action produces dissonance and the dissonance cumulates (Joule, 1991b: 840). Hence, according to dissonance theory, attitude change will be greater when the person performs two inconsistent actions rather than one.

In his experiment, Joule (1991b) used the method of forced compliance (Festinger & Carlsmith, 1959). Compliance is "forced" when there is some

incentive or inducement used to motivate the person to act inconsistent with his beliefs. In other words, people are promised money to act in a manner that is inconsistent with their attitude. Joule paid smokers money to abstain temporarily from smoking, to tell another person that it was easy to abstain, or to do both of these actions. When subjects were paid to perform both actions, Joule called this situation "double forced compliance". In accord with dissonance theory, Joule found that smokers who were induced to perform two counter-attitudinal acts changed their attitude towards smoking more than smokers who had only done one of these actions.

Self-Perception & Double Forced Compliance

Although this finding supports a dissonance interpretation, Bem's (1965, 1967) theory of self perception offers another type of explanation. From this perspective, people are viewed as witnesses who draw conclusions about their own and others attitudes based on current evidence. The most important evidence involves recent actions and any other evidence that indicates the actions are truthful (Bem, 1970). One way that truthfulness of actions is affected is by using inducements such as money to get the person to do the actions. From the point of view of both actors and observers, the greater the inducements the less likely the actions reflect true beliefs (Bem, 1967). That is, to large extent, actors and observers both use behavior and inducements to arrive at conclusions about their own and others attitudes.

For example, a smoker who abstains from smoking for a small sum of money, is likely to conclude that stopping smoking is not as difficult as she first believed. This is because she cannot attribute her action to the external incentive (i.e. the money) and she must conclude that the action reflects her actual attitude towards smoking. Notice that an observer of the smoker's behavior should draw a similar conclusion when presented with the same evidence. That is, a smoker who abstains for a trivial external incentive must have a "latent" anti-smoking attitude. In contrast, if the smoker receives a large payment to stop smoking, she can attribute her action to the money. In this case, she is likely to conclude that it still is difficult to stop smoking. Again, an observer presented with this evidence should come to a similar conclusion (Bem, 1967; Bem, 1970).

Along with the ability of incentives to alter the credibility of an action, the sequence of actions themselves may be used by actors and observers to draw conclusions about true beliefs. One important sequence involves corresponding actions. When an action is preceded (or followed) by a different action that affirms it, the two actions are said to "correspond". Actions that correspond are more believable or credible to both actors and observers; actions that do not correspondent are distrusted. If a person says one thing and does another, the person's statement is not credible. For example, a minister who preaches marital fidelity but is caught in an extra-marital relationship knows that he is preaching a lie and is also not trusted by his congregation. When the minister's words and deeds match, both the minister and the congregation believe the sermon.

One possibility is that the smokers in Joule's double forced compliance situation came to believe that it was easier to give up smoking because they had performed two corresponding actions. The action of temporarily abstaining from smoking added credibility to the action of saying it was easy to abstain. Under these conditions, the smokers came to believe what they said. Because actors and observers use similar evidence to infer their own and others attitudes, observers should also conclude that a smoker was less favorably disposed towards smoking after seeing her abstain from smoking and hearing her state that it was easy to do so.

In order to distinguish between the dissonance and self perception accounts of double forced compliance, observers must be used as substitutes for the actual subjects (Bem, 1965, 1967; Bem & McConnell, 1970:25). Observers are simply shown the actions of the subjects in Joule's (1991b) experiment. Because observers do not perform the counter-attitudinal acts, there is no inconsistency between their attitudes and actions (Bem, 1965, 1967). This means that observers do not experience psychological tension or dissonance. They arrive at their conclusions about the smoker's attitude based solely on the evidence of the actor's actions and the incentive conditions.

In the present experiment, observers were shown one of several videotapes that replicated the conditions of Joule's (1991b) study. These videotapes were designed to depict the actions of the subjects and the incentives used to induce these actions. Observers were randomly assigned to viewing a videotape in which

they saw a subject paid a small sum money to abstain from smoking (**abstain**), tell another person that it is easy to abstain (**say easy**) or do both of these acts (**correspondent actions**). In addition, some observers viewed a videotape in which a smoker did a concentration task, but the smoker did not abstain from smoking or say it was easy to abstain (**control**). It was expected that observers would conclude that the smoker was less committed to smoking after they saw her perform the two corresponding actions than either action alone (Hypothesis 1). Also, it was expected that observers would rate the communication of saying that it was easy to abstain as more credible when it was preceded by the action of abstaining from smoking (Hypothesis 2).

It is more difficult to predict observers' responses in the single action conditions (abstain or say easy). There are two reason for this difficulty. One reason is that a single action by itself is less convincing; it leads to a weaker conclusion about the smoker's attitude. Another reason is that Joule used a deception technique as well as incentives to induce compliance (Cialdini, Basset, Cacioppo, & Miller, 1978; Joule, 1987; Joule, Mugny & Perez, 1988). That is, the recruitment procedure involved a deception that pressured smokers into abstaining from smoking.

Joule required heavy smokers to participate in his dissonance experiment. In order to recruit smokers, Joule asked students to sign-up for a psychology experiment. Subjects were not told that they would have to abstain from smoking. From the total pool of subjects, Joule selected the heavy smokers and when they

arrived at the laboratory, he asked the smokers to stop smoking for a day. That is, only after the smokers agreed to do the experiment were they informed that they must refrain from smoking for a day.

Presumably, this deception also had an effect on the smokers' conclusions about their attitudes. Because the smokers were pressured into abstaining, they may have been reluctant to use the act of abstaining to draw conclusions about their attitudes towards smoking. In other words, if people are forced to do something, they do not take their actions as evidence for their beliefs and attitudes. Joule's results suggest this possibility in that smokers who temporarily abstained did not believe it was easy for them to give up smoking.

In the present experiment, observers were also shown the deception tactic that Joule used to induce compliance. It was expected that observers would conclude that the action of abstaining from smoking was less credible because of the experimenter's deception. That is, observers should be reluctant to use the smoker's action of abstaining as evidence for her beliefs about smoking.

Based on the analysis of deception and pressure, it is expected that observers in the say-easy condition would conclude that the smoker was less inclined to smoke than those in the abstain condition (Hypothesis 3). Although actually abstaining is better evidence for a smoker's attitude than hearing someone say it is easy to quit smoking, the pressure used to recruit heavy smokers should weaken the impact of abstaining.

Effects of Initial Attitude & Double Forced Compliance

One difference between actors and observers is that actors presumably knew their initial attitude before they complied with the experimenter's requests. Joule's (1991b) subjects were chosen on the basis of smoking at least 15 cigarettes per day. That is, subjects in the double forced compliance experiment presumably had a highly favorable initial attitude towards smoking. Dissonance researchers suggest that a subject's initial attitude plays a crucial role in attitude change (Shaffer, 1974; Fazio, 1980; Jones, Linder, Kiesler, Zanna & Brehm, 1968; Chris & Woodyard, 1973; Harris & Tamler, 1973; Shaffer, 1974; Taylor, 1975; Zanna, Olson & Fazio, 1981), because it is the discrepancy between the initial attitude and the counter-attitudinal action that produces cognitive dissonance.

Jones, Linder, Kiesler, Zanna & Brehm (1968) conducted a series of experiments to show the importance of information about initial attitude on observers' conclusions about the attitude of subjects in dissonance experiments. In one study, Jones et al. (1968) had observers view the actions of subjects in a forced compliance study (refer to Brehm & Crocker (1962) Hunger Experiment). Observers saw food deprived male subjects in a forced compliance experiment agree to continue going without food for another 8 to 9 hours for either $5 or no monetary inducement. Observers rated subjects in the no payment condition as less hungry after agreeing to continue the food deprivation than subjects who were paid $5 and agreed to continue.

At this point, Jones et al. (1968) provided observers with the subjects level of hunger before they agreed to continue with the food deprivation (initial attitude). When observers were told that a subject was moderately hungry before agreeing to continue, there was no difference in observers' hunger ratings between the payment conditions (Jones et al., 1968). That is, telling observers the subject's initial level of hunger eliminated the lower hunger ratings given in the no payment condition. The results from this experiment and other experiments that provide information about initial attitude are clear. When observers are given the subjects initial position, they no longer base their conclusions on incentive conditions and the actions of the subject.

In terms of the present experiment, the research on initial attitude and observers conclusions suggests that information about subjects initial attitude toward smoking will eliminate the effects of sequence of action. This is because the effects sequence of actions are similar to the effects of incentives. Thus, dissonance researcher's would predict no difference among the sequence of action conditions on post-test attitude and a main effect of initial attitude (Hypothesis 4).

From a self-perception viewpoint, the problem with telling observers about the subjects' initial attitude is that observers must choose between conflicting sources of information. Observers are forced to choose between evidence based the sequence of actions indicating it is easy stop smoking or on evidence of initial attitude supplied by the experimenter suggesting it is moderately difficult to stop. For example, if observers sees a smoker abstain and say it is easy to stop then

she would conclude that it was easy for the person to stop. In contrast, if the experimenter tells observers that it is moderately difficult for the smoker to stop before they see her actions, they would reject the evidence based on actions and conclude along with the experimenter the smoker had difficulty stopping. In this case, the credible source of information overrides the evidence based on the actions of the subject.

A more appropriate procedure is to allow observers to infer the subject's initial attitude from her behavior. In the case of smoking, observers could infer the smoker's difficulty of quitting based upon evidence of how much she actually smokes. With this procedure there is no conflict between the experimenter's words and the smoker's actions. Importantly, Bem and McConnell (1970) have shown that only recently observed events are relevant to a subject's conclusions about their attitudes in a dissonance experiment. Once subjects have performed the counter-attitudinal action they cannot accurately recall their previous statements about their attitude (Bem & McConnell, 1970: 23). This means that the subject's initial attitude has no bearing on their post-manipulated attitude (Bem & McConnell, 1970: 23). As previously stated, actors and observers often come to similar conclusion based on the evidence. Thus, observers' conclusions about an actor's initial attitude should have no bearing on the observers' conclusions of subsequent attitude.

In order to test the importance of initial attitude, observers were told that a subject in Joule's experiment smoked either 5 (**weak initial attitude**) or 15

cigarettes a day (**strong initial attitude**). Observers were therefore allowed to infer the subject's attitude towards smoking before seeing the subject abstain from smoking, state it was easy to abstain or do both of these actions. It was expected that observers would infer a stronger initial attitude in favor of smoking when the subject smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day (Hypothesis 5). That is, the number of cigarettes that the subject smokes per day is expected to affect the observers' pre-test ratings of the subjects attitude towards smoking.

In accord with self perception theory, inferences of initial attitude were not expected to alter the observers' conclusions about the actor's subsequent attitude. Observers' conclusions about subsequent attitude should be based solely on the smokers recent corresponding actions. That is, the effects of sequence of action on post-test attitude do not depend on conclusions of initial attitude. A main effects sequence of action on post-test attitude and a main effect of initial attitude on post-test attitude were expected (Hypothesis 6).

METHOD

Subjects

Two hundred and thirty undergraduate students were recruited as interpersonal observers (subjects) for this experiment. Students were offered bonus marks on their final examination to participate and a chance at a $100 lottery. The results are based on N=210 observers as results for 20 participants were deleted due to experimental errors. The observers were randomly assigned to one of six experimental conditions or to a control condition. The number of observers for each condition is reported in the procedure section.

Apparatus & Setting

An experimental laboratory for small-group research was arranged with four tables and twelve chairs and equipped with a videotape recorder and television monitor. Up to three observers were seated at each table; cardboard barriers were erected to prevent observers from communicating with one another. A pencil and file folder was placed in front of each observer. Forms included a preliminary questionnaire, an initial survey, and a post survey. Each file folder and survey were marked with an identification number. There were a total of seven videotaped scenarios that were shown, depending on the experimental condition (see Appendix 1).

Procedures

Observers were informed that the experiment was an impression formation study and that the experiment required twenty-five minutes of their time. As many

as twelve observers were booked for an experimental session, and experimental conditions were randomly assigned to the time slots allocated for the sessions.

Upon arrival at the laboratory, observers were asked to take a seat at one of the tables facing the television monitor. A pencil and file folder were placed in front of each observer and a preliminary survey was given to each participant. Observers were told that they would be watching a videotape of a subject named Judy who had participated in another experiment. Observers were asked to indicate their impressions of this subject by rating her on a number of standardized scales.

At this point, the videotape began. Observers heard an announcer who asked them to complete the **preliminary survey** (see Appendix 2). The observers read each question along with the announcer and had approximately fifteen seconds to give their response. When the survey was completed, observers placed the questionnaire in their file folder. The videotape now showed a reconstruction of a forced-compliance dissonance experiment using an actor (Judy) as the experimental subject. In all conditions, this subject was shown being told that she was participating in a smoking and concentration experiment and she was being paid six dollars to participate.

Each videotape varied on two dimensions. First, the strength of the **initial attitude** was varied in terms of the number of cigarettes the subject smoked each day (either 15 or 5 cigarettes). Second, the **sequence of actions** were varied across three conditions: 1) the subject agreed to abstain from smoking for 18

hours (**abstain**); or 2) the subject told another person that it was easy to abstain (**say easy**); or 3) the subject was asked to do both of these acts (**correspondent actions**).

Condition 1 (N=33): 15 cigarettes-correspondent actions. The subject was portrayed as smoking 15 cigarettes a day. She was asked by the experimenter to abstain from smoking for 18 hours. After the period of abstaining, she was shown wearing different clothes returning to the laboratory and performing a concentration task. Following, the concentration task, the subject was asked to tell another subject that it was easy to abstain. She was shown convincing the next subject using arguments like "I found it easy [to abstain]. In fact, after a while I didn't even think about it".

Condition 2 (N=32): 5 cigarettes-correspondent actions. This videotape was the same as condition 1 except that the subject was described as smoking 5 cigarettes per day.

Condition 3 (N=34): 15 cigarettes-abstain. In this scenario, the subject was a 15 cigarette-a-day smoker who was asked only to abstain from smoking for 18 hours and engage in a concentration exercise. There was no communication that it was easy to abstain in this condition.

Condition 4 (N=29): 5 cigarettes-abstain. This condition is the same as condition 3 except that the subject was described as smoking 5 cigarettes a day.

Condition 5 (N=27): 15 cigarettes-say easy. In this videotape, the subject was described as smoking 15 cigarettes per day. Rather than being asked to abstain, the experimenter told her that she was part of the control group which did not have to abstain. She engaged in the concentration exercise and told the next subject that she abstained and found it easy.

Condition 6 (N=34): 5 cigarettes-say easy. This condition is the same as condition 5, but the subject was described as smoking 5 cigarettes daily.

Condition 7 (N=21): Control condition. In this condition the subject was a smoker who participated in an experiment. She was shown doing the concentration task. There was no mention of abstaining or saying it is easy to abstain.

In each condition, the strength of the initial attitude was manipulated by showing the subject counting out the number of cigarettes she usually smoked each day at the initial interview (*how many cigarettes the subject smoked per day*). At this point, the observers were handed the **initial survey** (see Appendix 3) and were asked to read and answer each question along with the announcer. As noted, observers in the control group were not informed as to how many cigarettes

the subject smoked. The initial survey consisted of several rating scales (see dependent measures) that the observers used to indicate their impressions of the subject. There were three critical measures (*ease of abstaining*, *ease of quitting*, and *hours without a cigarette*[1]) and an additional question that was a manipulation check (e.g. *indicate the number of cigarettes the subject smoked*). These measures are discussed in the dependent measures section.

When the survey was completed, observers were once again asked to place the survey in their file folder. The videotape now showed the subject engaging in the counter-attitudinal act(s) and concentration task. Observers in the control group were shown only the concentration task.

Upon completion of the videotaped presentation, observers were handed the **post survey** and asked to follow the same procedure as in the previous surveys (see Appendix 4). The post survey contained the same three questions about how difficult it was to abstain from smoking, quit smoking and the number of hours the subject could go without a cigarette as responded to on the initial survey. In addition, the post survey contained, depending on the condition, one or two more manipulation check questions: convincingness of the subject's communication (saying it was easy to abstain) and belief that the subject actually abstained from smoking.

---

[1] This same question was asked in one of Joule's previous experiment involving the double forced compliance situation (Joule, 1991a:123).

Design

The design was a 2 x 3 factorial analysis of variance using pre-test and post-test ratings. Strength of initial attitude was varied on two levels (5 and 15 cigarettes). Sequence of actions was varied on three levels (abstain, say-easy, and correspondent-actions). A separate control group was run as part of the design. In addition, a 2 x 3 x 2 repeated measures analysis of variance was also used. The between groups factors in this design were the same as above, except that a repeated measures factor (pretest score and post-test score) was added to the design. Because of problems with auto-correlation, all results were Geisser and Greenhouse (1958) corrected.

Dependent Measures. There were several dependent variables in this experiment, all of which are based on the observer's ratings of the subject shown in the videotape. Subjects were cautioned that scales may differ in both magnitude and direction. In addition, the announcer read each item on the survey and explained how to rate each scale.

Ratings were obtained using the initial and post surveys. The primary measure was the observers' ratings of how difficult it was for the subject to abstain from smoking for 18 hours. *Ease of abstaining* was measured on a 12 point scale (0 through 11 scale, where 0 was very easy and 11 represented impossible). Observers were also ask to rate the subject on how difficult she would find it to quit smoking. *Ease of Quitting* was measured on a 7 point scale (1 through 7 scale, where 1 was impossible and 7 represented very easy). Observers also rated how

long the subject could go without feeling a deep need for a cigarette. *Hours without a cigarette* was measured in hours, with the choices being one through twenty-four hours (see Appendices 4 & 5 for questions). Finally, observers were asked rate on a 7 point scale whether "Judy believed what she told the new participant". Responses to this question were taken as an index of the *credibility of communication* (1 through 7, where 1 was disbelieve and 7 represented believe).

Manipulation Check Measures. There were three manipulation check items which were included to measure the effectiveness of the videotaped presentation. Observers were asked to report how many cigarettes the subject smoked on a per day basis. This question checked that the initial attitude variable was manipulated effectively. Observers in the correspondent actions and abstain only conditions were also asked if they believed that the subject abstained from smoking for 18 hours. This question checked that observers believed that the subject, in fact, abstained from smoking and, therefore, successfully engaged in this action. The *believe-abstain* measure, appeared on the post survey and was measured on a 7 point scale (1 through 7, where 1 was very unlikely and 7 was very likely). In addition, observers in the say-easy and correspondent-actions conditions were asked to rate the subject on how convincing she was when she told the new participant that it was easy to abstain from smoking. This item checked whether the observers believed that the subject did a convincing job of communicating that it was easy to abstain from smoking and therefore had successfully engaged in this action. The *convincingness of communication* was measured on the post survey

on a 7 point scale - 1 through 7, where 1 meant unconvincing and 7 represented convincing (see Appendices 4 & 5 for actual questions). Observers in the control group were not given any of these manipulation check items because the strength of the initial attitude and the external cues based on actions were not manipulated in the control condition.

RESULTS[2]

Manipulation Checks[3]

Table 1 shows the percentage of observers who passed all the manipulation checks for each condition. A smaller percentage of successful manipulations occurred in the 15 cigarettes correspondent-actions condition (63.6%) and the 15 cigarettes abstain condition (67.6%). Observers found it difficult to believe that the subject abstained from smoking for the 18 hours in these conditions.

Insert Table 1 about here

Number of Cigarettes. All observers except for those in the control group were asked to indicate the number of cigarettes that the subject smoked on a per day basis. Of the 189 participants who were asked to respond to this question, only 4.8 percent of the observers gave an incorrect response.

Abstained from smoking. Observers in the abstain and correspondent-actions conditions were asked to respond to this question: "Do you believe that Judy abstained from smoking for the specified time (18 hours)?". A total of 128

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[2] See Appendix 5 for pre-test results.

[3] A separate analysis was conducted on the subset of observers who passed all manipulation check items. Results for this analysis were similar to those presented in the main body of the results section. It should, however, be noted that subset results indicated a stronger inference of attitude change in the correspondent-actions condition, on all three dependent measures.

participants responded to this question. Of the total who responded, 22.7 percent indicated they did not believe the subject abstained.

A 2 X 2 analysis of variance was conducted using initial attitude (5 or 15 cigarettes) and actions (abstain or correspondent-actions). Results indicated that observers shown correspondent-actions ($M=5.71$) were more likely to believe that the subject abstained than the abstain only group ($M=4.85$), $F(1,122)=7.05$, $p=0.009$. There were no other significant effects.

Convincingness of communication. Observers in the say-easy and correspondent-actions conditions were asked to respond to this question: "How convincing was Judy when she told the new participant that it was easy to abstain from smoking?". A total of 126 observers responded to this question. Of the total who responded, 15.9 percent were not convinced by the subject's communication.

A 2 X 2 analysis of variance using strength of initial attitude (5 or 15 cigarettes) and actions (say-easy or correspondent-actions) on the convincingness of communication indicated no statistically significant differences among the conditions, $F(2,122)=0.192$, ns.

Effects of sex and smoking history

A total of 170 females and 40 males were included in this study. Weighted means t-tests were conducted to test the effects of sex on pre-test and post-test ratings for ease of abstaining, number of hours without a cigarette and ease of quitting.

Results indicated that the observer's sex had a significant effect on pre-test ratings for ease of abstaining, $t(208) = -2.02$, $p = 0.05$, and the number of hours without a cigarette, $t(208) = 2.11$, $p = 0.04$. Female observers concluded that it was more difficult for the subject to abstain from smoking ($M = 6.25$, $SD = 2.59$) and that she could go fewer hours without a cigarette ($M = 5.78$, $SD = 6.57$) than male observers ($M = 5.30$, $SD = 2.99$; $M = 8.40$, $SD = 8.99$, respectively). The observer's sex did not have a significant effect on the pre-test ratings for ease of quitting, $t(208) = 0.49$, ns. In terms of post-test ratings, sex had no effect on ease of abstaining $t(208) = -0.02$, ns, number of hours without a cigarette, $t(208) = 0.31$, ns, or ease of quitting, $t(208) = -1.22$, ns.

A total of 18 observers in this study indicated that they currently smoked. Given that the study was based on manipulating the behavior of smoking, a weighted means t-test was performed to see whether smokers and non-smokers differ in their responses. Results indicated that whether or not the observer currently smoked had no significant effect on pre-test ratings for ease of abstaining, $t(208) = -1.12$, ns, number hours without a cigarette, $t(208) = 1.84$, ns, or ease of quitting, $t(208) = 0.82$, ns. In terms of post-test ratings, whether the observer smoked or not also had no effect on ease of abstaining $t(208) = 0.17$, ns, number of hours without a cigarette, $t(208) = 1.06$, ns, or ease of quitting, $t(208) = 0.36$, ns.

Effects of number of cigarettes smoked on pre-test ratings

Results of this study were based three interrelated measures: 1) Joule's (1991b) key question pertaining to the ease of abstaining for 18 hours; 2) ease of quitting for good; and 3) the number of hours the subject can go without a cigarette before feeling a deep need.

Pre-test Correlations. The pre-test correlations indicated that the ease of abstaining was moderately correlated with ease of quitting ($r=0.64$, $p < 0.001$) and with number of hours the subject can go without a cigarette ($r=0.51$, $p < 0.001$). The ease of quitting was also moderately correlated with the number hours the subject can go without a cigarette ($r=0.49$, $p < 0.001$). Although these correlations indicate that the measures share common variance, they are not equivalent measures and are therefore analyzed separately.

Ease of Abstaining. One of the major questions in this study concerns the effects of the number of cigarettes smoked on pre-test ratings of the actor's attitude toward smoking: ease of abstaining, ease of quitting, and hours without a cigarette. It was hypothesized that observers would infer a stronger initial attitude in favor of smoking when the subject smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day. Table 2 shows the pre-test means and standard deviations for the ease of abstaining measure by treatment condition. A oneway analysis of variance was conducted using the number of cigarettes that the actor smoked (control, 5 cigarettes or 15 cigarettes) and the pre-test rating for ease of abstaining. As expected, the number of cigarettes affected the observer's

conclusions about how easy it was for the subject to abstain from smoking ($F(2,207)=25.79$, $p < 0.001$). Post hoc comparison of means using Duncan multiple range statistic ($p < 0.05$)[4] indicated that observers inferred it was more difficult for the actor to abstain when she smoked 15 cigarettes ($M=7.39$, $SD=2.21$) than when she smoked 5 cigarettes ($M=4.93$, $SD=2.44$) or when the observer did not know how many cigarettes the actor smoked, i.e. the control variation ($M=5.29$, $SD=3.15$). Also, observers' conclusions about the actor's initial attitude towards smoking did not differ between the 5 cigarette and control conditions. This result suggests that only observers who saw the actor smoke 15 cigarettes drew the conclusion that it was difficult for the subject to abstain from smoking.

Insert Table 2 about here

Ease of Quitting. Table 3 shows the pre-test means and standard deviations of how easy it was for the subject to quit smoking by each treatment condition. A oneway analysis of variance was conducted using the number of cigarettes that the actor smoked (control, 5 cigarettes or 15 cigarettes) and the observers' pretest ratings of how easy it was for the subject to quit smoking. Results indicated that the number of cigarettes that the subject smoked affected the observer's conclusion of how easy it was for her to quit smoking ($F(2,207)=17.63$, $p < 0.001$). Post hoc comparison of means showed that observers concluded it was more

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[4]The Duncan multiple range statistic ($p<0.05$) is used throughout.

difficult for the actor to quit when she smoked 15 cigarettes (M=2.41, SD=0.83) than when she smoked 5 cigarettes (M=3.36, SD=1.21) or when the observers did not know how many cigarettes the actor smoked, i.e. control (M=3.38), SD=1.88). Also, observers' conclusions about how easy it was for the actor to quit smoking did not differ between the 5 cigarette and control conditions. Again, only when observers saw the actor smoke 15 cigarettes per day did they conclude that it was more difficult for the subject to quit smoking. These results parallel and support the findings for the ease of abstaining measure.

Insert Table 3 about here

Hours without a cigarette. Table 4 shows the pre-test means and standard deviations of how many hours the subject could go without a cigarette for each condition. A oneway analysis of variance was conducted using the number of cigarettes that the actor smoked (control, 5 cigarettes or 15 cigarettes) and the observers' pretest ratings of how many hours the subject could go without a cigarette before feeling a deep need. As expected, the number of cigarettes affected the observers' conclusions about how many hours that the actor could go without a cigarette ($F(2,207)=17.65$, $p < 0.001$). Post hoc comparison of means indicated that observers concluded that the actor could go fewer hours without a cigarette when she smoked 15 cigarettes (M=3.29, SD=4.83) than when she smoked 5 cigarettes (M=8.44, SD=7.59) or when the observer did not know how

many cigarettes the actor smoked, i.e. control (M=9.86, SD=8.77). In addition, observers' conclusions about the number of hours the subject could go without a cigarette did not differ between the 5 cigarette and control conditions.

Insert Table 4 about here

Overall the pre-test results showed that observers concluded it was more difficult for a subject who smoked 15 cigarettes a day to stop smoking than a person who smokes 5 cigarettes per day. These findings indicate that observers drew different conclusions about the subject's attitude towards smoking based her cigarette consumption.

Effects of Initial Attitude and Sequence of Actions on Post-test Ratings

Post-test Correlations. The post-test correlations indicated that the ease of abstaining was moderately correlated with ease of quitting ($r=0.51$, $p < 0.001$) and with number of hours the subject can go without a cigarette ($r=0.35$, $p < 0.001$). The ease of quitting was moderately correlated with the number hours the subject can go without a cigarette ($r=0.51$, $p < 0.001$).

Ease of abstaining. Table 2 also shows the post-test means and standard deviations for the ease of abstaining measure by condition. A 2 X 3 analysis of variance was conducted using the initial attitude (5 or 15 cigarettes) and sequence of actions (abstain, say-easy, or correspondent-actions). The dependent variable was the observers' post-test ratings of how easy it was for the subject to abstain

from smoking. Results indicated a main effect of the sequence of actions on the observers' post-test ratings of the subject's attitude, $F(2,183)=27.01$, $p < 0.001$. Post hoc comparison of means indicated that the post-test ratings of observers in the correspondent-actions condition ($M=2.63$, $SD=2.55$) differed from the ratings of observers in the abstain ($M=6.21$, $SD=2.65$) and say-easy ($M=4.97$, $SD=3.25$) conditions. In addition, observers in the abstain condition differ in post-test ratings from observers in the say-easy group. Generally, observers in the correspondent-actions condition concluded it was easier for the subject to abstain than observers in the say-easy group and abstain conditions. When compared with observers in the control group ($M=5.38$, $SD=3.11$), only the observers in the correspondent-actions condition differed in their ratings of how easy it was for the subject to abstain.

In order to further substantiate the analysis a 2 X 3 X 2 repeated measures analysis of variance was conducted. The factors were initial attitude (5 or 15 cigarettes), sequence of actions (abstain, say-easy or correspondent-actions) and test phase (pretest, post-test) as repeated measures. Of interest is the repeated measure factor and its interaction with the experimental conditions. Results showed that the sequence of actions interacted with test phase, $F(2,183)=21.12$, $p < 0.001$. Figure 1 illustrates that relative to the pretest the post-test scores for the correspondent-actions condition show a noted decrease; also, the say-easy condition shows a slight decrease.

Insert Figure 1 about here

Given that the main effects average over the pretest to post-test values, these results are not reported here (see Appendix 6, table 5). A regression analysis was used to obtain residual gain scores - pretest scores were regressed on the post-test measure (Cronbach & Furby, 1970; Kerlinger, 1973). This procedure servers to remove the effects of the pre-test ratings from the post-test ratings and therefore offers more precise estimates than using change scores (Cronbach & Furby, 1970: 68).

Post hoc comparison of the residual gain means indicated that the correspondent-actions condition ($M=-2.04$, $SD=2.49$) differed from both the abstain only ($M=1.51$, $SD=2.57$) and the say-easy ($M=0.26$, $SD=2.99$) conditions. In addition, the say-easy condition differed from the abstain condition. The observers concluded that it was less difficult to abstain only in the correspondent-actions condition after the pretest effects were removed. This result indicates that the single action conditions had a weak effect on drawing conclusions about the smoker's attitude. The initial attitude also interacted with test phase, $F(1,183)=8.60$, $p < 0.004$. A one-way analysis of variance on the residual gain scores indicated that after the effects of the pre-test were removed, the 15 cigarettes condition did not differ from the 5 cigarettes condition, $F(1,187)=0.12$, ns. Thus, inference of initial attitude had no bearing on observers conclusions

about final attitude. There was no three way interaction of initial attitude, sequence of actions and test phase, $F(2,183)=0.54$, ns.

Ease of quitting. Table 3 also shows the post-test means and standard deviations for the ease of quitting measure by condition. A 2 X 3 analysis of variance was conducted using initial attitude (5 or 15 cigarettes) and sequence of actions (abstain, say-easy and correspondent-actions). The dependent variable was the observers' post-test ratings of how easy it was for the subject to quit smoking. Results indicated a main effect of the sequence of actions on the observers' post-test ratings of the subject's attitude, $F(2,183)=13.62$, $p < 0.001$. Post hoc comparison of means indicated that the post-test ratings of observers in the correspondent-actions condition ($M=3.51$, $SD=1.35$) differed from the ratings of observers in the abstain ($M=2.33$, $SD=1.05$) and say-easy ($M=3.11$, $SD=1.43$) conditions. In addition, observers in the abstain condition differ in post-test ratings from observers in the say-easy group. Generally, observers in the correspondent-actions condition concluded it was easier for the subject to quit than observers in the say-easy group and abstain conditions. When compared with observers in the control groups ($M=3.05$, $SD=1.80$), only the observers in the correspondent-actions condition differed in their post-test ratings of ease of quitting.

In order to further substantiate the analysis of post-test scores a 2 X 3 X 2 repeated measures was conducted. The factors were initial attitude (5 or 15 cigarettes), actions (abstain, say-easy or correspondent-actions) and test phase (pretest, post-test) as repeated measures. Since the main effects average over the

pretest to post-test values, these results are not reported (see Appendix 6 table 6). Of interest are the repeated measures and their interaction with the experimental condition. Recall that the scale for the ease of quitting measure ranges from 1 (impossible) to 7 (very easy). Thus, a positive gain score indicated that it was easier to quit. Results indicated that sequence of actions interacted with test phase, $F(2,183)=17.23$, $p < 0.001$. Figure 2 illustrates that relative to the pretest the post-test scores for the correspondent-actions condition show a noted increase; also, the say-easy condition shows a slight increase.

Insert Figure 2 about here

Post hoc comparison of the residual gain means indicated that the correspondent-actions condition ($M=0.58$, $SD=1.21$) differed from both the say-easy ($M=0.09$, $SD=1.22$) and the abstain conditions ($M=-0.61$, $SD=0.96$). Observers in the correspondent-actions condition inferred that it was less difficult to quit on the post-test. The initial attitude also interacted with test phase, $F(1,183)=16.75$, $p < 0.001$. A one-way analysis of variance on the residual gain scores indicated that there was a marginal difference between the 5 cigarettes ($M=-0.13$, $SD=1.28$) and 15 cigarettes ($M=0.18$, $SD=1.18$) conditions, $F(1,187)=3.03$, $p=0.0832$. There was no three way interaction of initial attitude, action and test phase, $F(2,183)=2.52$, ns.

Hours without a cigarette. Table 4 also shows the post-test means and standard deviations of how many hours the subject could go without a cigarette by condition. A 2 X 3 analysis of variance was conducted using initial attitude (5 or 15 cigarettes) and actions (abstain, say-easy, correspondent-actions). The dependent variable was the post-test ratings of how many hours could the subject refrain from smoking without feeling a deep need. Results indicated a main effect of the sequence of actions on the observers' post-test ratings of the subject's attitude, $F(2,183)=14.32$, $p < 0.001$. Post hoc comparison of means indicated that the post-test ratings of observers in the correspondent-actions condition ($M=10.46$, $SD=9.26$) differed from the ratings of observers in the abstain ($M=5.87$, $SD=7.21$) and say-easy ($M=6.11$, $SD=5.96$) conditions. In addition, observers in the abstain condition differ in post-test ratings from observers in the say-easy group. Generally, observers in the correspondent-actions condition concluded it was easier for the subject to quit than observers in the say-easy group and abstain conditions. When compared with the control group ($M=7.52$, $SD=7.45$), only the observers in the correspondent-actions condition differed on the number of hours measure.

In order to further substantiate the analysis based post-test scores a 2 X 3 X 2 repeated measures analysis of variance was conducted. The factors were initial attitude (5 or 15 cigarettes), sequence of actions (abstain, say-easy or correspondent-actions) and test phase (pretest, post-test) as repeated measures. Given that the main effects average over the pretest to post-test values, these

results are not reported here (see Appendix 6 table 7). Of interest are the repeated measures and their interaction with the experimental conditions. Results indicated that the sequence of actions interacted with test phase, $F(2,183)=6.16$, $p < 0.003$. Figure 3 shows that relative to the pretest the correspondent-actions condition shows a noted increase on the post-test.

Insert figure 3 about here

Observers in the correspondent-actions condition inferred the subject could go longer without a cigarette on the post-test. Post hoc comparison of the residual gain means indicated that the correspondent-actions condition ($M=2.95$, $SD=8.63$) differed from the say-easy ($M=-0.86$, $SD=5.06$) and abstain conditions ($M=-1.62$, $SD=6.32$). Say-easy and abstain conditions did not differ. The initial attitude did not interact with test phase, $F(1,187)=1.98$, ns. There was no three way interaction of initial attitude, actions and test phase, $F(2,183)=2.58$, ns.

Credibility of Communication

An important question is whether corresponding action enhance the credibility of the communication. Observers in the say-easy and correspondent-actions conditions rated the credibility of the subject's communication. A weighted means t-test was conducted to test the effects of correspondent-actions on whether observers believed the subject. Results showed that observers in the correspondent-actions condition rated the subject's communication as more

credible ($M = 5.05$, $SD = 1.58$) than observers in the say-easy condition ($M = 3.66$, $SD = 1.73$), $t(124) = 4.72$, $p < 0.001$. That is, observers found the subject's statement (i.e. "it is easy to abstain from smoking") more credible when it was preceded by the act of abstaining.

DISCUSSION

It was expected that observers would conclude that the smoker was less committed to smoking after they saw her perform the two corresponding actions than either action alone (Hypothesis 1). Results of the present experiment demonstrated that observers' conclusions about attitudes were enhanced if an action was preceded by a separate affirming action. Thus, observers who saw the smoker agree to abstain from smoking, and tell another person that it was easy, inferred that she could easily stop smoking.

Observers in the correspondent-actions condition made stronger conclusions about the smoker's attitude because her behavior was more believable. Furthermore, it was expected that observers would rate the communication of saying that it was easy to abstain as more credible when it was preceded by the action of abstaining from smoking (Hypothesis 2). Results showed that the subject was more believable in the correspondent-actions condition than in the say-easy condition. Although previous research has used incentives to alter the credibility of an action (Bem, 1965, 1967, 1970), this is the first study to show that a sequence of actions may be used to increase the credibility of a person's words.

Even though this experiment does not show how correspondent actions serve to alter the credibility of actions, it is possible to provide an a preliminary analysis. People look for and reinforce similarity between saying and doing (e.g. Lovaas, 1961; Matthews, Shimoff & Catania, 1987; Paniagua & Baer, 1982; Risely

& Hart, 1968). For example, if a man promises to be faithful and rejects advances by other women, his wife is pleased. Failure to keep such a promise, generates anger. In this regard, actions that correspond would be reinforced, whereas actions that do not would be punished.

The community arranges social reinforcement for correspondence between words and deeds. Also, people require consistency between actions and reports of those actions. In this case, correspondence is trained between doing and saying (Baer & Detrich, 1990; Deacon & Konarski, 1987; Lubinsky & Thompson, 1987). Once correspondent action is trained, people may learn to label actions that correspond as trustworthy or credible; non-correspondent actions are judged as untrustworthy. Thus, people rely on correspondent actions to believe or reject a communication.

It was expected that observers in the say-easy condition would conclude that the smoker was less inclined to smoke than those in the abstain condition (Hypothesis 3). In accord with this hypothesis, results showed that observers in the say-easy condition concluded that the smoker was less inclined to smoke than those in the abstain condition. This is because observers were shown the deception technique that Joule used to induce compliance (Cialdini, Basset, Cacioppo, & Miller, 1978; Joule, 1987; Joule, Mugny & Perez, 1988). Due to this deception, it was assumed that observers would conclude that the action of abstaining from smoking was less credible. The present study's results supported

this assumption. Observers did not use the smoker's action of abstaining as evidence for her beliefs about smoking.

In addition, the results showed that the observers in the abstain condition did not differ from the control group. Again, this result is not surprising given that observers were shown the deception technique used to get the subject to abstain from smoking. Although observers in the say-easy condition concluded that the subject was less inclined to smoke than those in the control group, results showed that their conclusion did not differ significantly. This result suggests that the manipulation in the say-easy condition was weak.

The present experiment is the first study to allow observers to draw conclusions about the initial attitude of a subject in a dissonance experiment. It was expected that, observers would infer a stronger initial attitude in favor of smoking when the subject smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day. Results confirmed this hypothesis (Hypothesis 5). Observers in the 5 and 15 cigarettes conditions differed in their conclusions about the smoker's initial attitude. That is, observers inferred a stronger initial attitude in favor of smoking when the actor smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day.

In terms of the post-test ratings, it was expected that sequence of actions do not depend on conclusions of initial attitude. Instead, two main effect of sequence of actions and initial attitude on post-test attitude were expected (Hypothesis 6). Results indicated a main effect of sequence of actions on the

observers' post-test ratings of the subject's attitude for all three dependent measures - ease of abstaining, ease of quitting, hours without cigarette. In addition, results showed that initial attitude yield a main effect for the ease of abstaining measure and hours without a cigarette measure. Removal of the pre-test effects through residual gains scores yielded two main effects of sequence of actions and initial attitude on test phase across all three measures. There was no interaction of sequence of action and initial attitude on observers' conclusions about the smoker's attitude. Thus, as Bem and McConnell (1970) suggested, inference of initial attitude had no bearing on observers conclusions about final attitude.

Although this experiment did not test the effects of telling observers the actual ratings of the subject's attitude towards smoking, previous studies have examined this effect (Jones, et al., 1968). Jones et al. (1968) found that when observers are given information about the subject's initial attitude they were unable to reproduce the self-ratings of the subject. The design used in the present experiment confirms that a more appropriate procedure is to provide information about the actor's behavior and allow the observers to infer her initial attitude. Results showed that the observers conclusions about the smoker's attitude towards smoking were consistent with the attitude change shown by the actual smokers in Joule's (1991b) dissonance experiment. Thus, the claim by dissonance theorists (Hypothesis 4) that observers are unable to reproduce the self-rating of the subject when provided with information concerning the subject's initial attitude

(Shaffer, 1974; Fazio, 1980; Jones, Linder, Kiesler, Zanna & Brehm, 1968; Harris & Tamler, 1973) is not supported.

The present experiment confirmed the applicability of self perception theory to the double forced compliance situation. From the perspective of self perception theory, both actors and observers draw conclusions about a person's attitudes from evidence concerning her behavior (Bem, 1967, 1970). Observers in the present experiment predicted the attitude change that Joule subjects showed in the double forced compliance situation. That is, observers indicated that it was easier for the smoker to stop smoking on the post-test measures and mean difference ratings for Joule's subject also showed that the smoker found it easier to stop smoking. This finding helps to explain the attitude change shown by subjects in Joule's (1991b) dissonance experiment.

Recall that self perception theory makes no distinction between the conclusions drawn by actors and observers (Bem, 1965, 1967; Bem & McConnell, 1970). Both actors and observers use the available evidence to draw conclusions about attitudes. Observers in the present experiment used the smoker's corresponding actions to conclude that she could easily stop smoking. Presumably, Joule's subjects also drew conclusions about their attitudes towards smoking based on similar evidence. That is, when Joule's subjects were faced with evidence of their corresponding actions, they inferred that it was easier for them to stop smoking.

This study substituted observers for subjects in Joule's study. This method was used to distinguish between dissonance and self perception accounts of the double forced compliance situation. Joule's subjects actually performed the two acts of forced compliance, but observers in this study did not. Because observers did not perform the counter-attitudinal actions, their attitude change could not be due to reduction of cognitive dissonance. Although subjects in the original double forced compliance experiment could be in a state of dissonance, there is no reason to postulate this internal state. The results for both the actual smokers and observers can be understood as a generalization based on the sequence of actions.

CONDITIONS*	N PER CONDITION	MANIPULATIONS	**TOTAL PASS****
15 CIGARETTES: CORRESPOND-ACTS	33	3	21 (63.6%)
5 CIGARETTES: CORRESPOND-ACTS	32	3	26 (81.3%)
15 CIGARETTES: ABSTAIN	34	2	23 (67.6%)
5 CIGARETTES: ABSTAIN	29	2	22 (75.9%)
15 CIGARETTES: SAY-EASY	27	2	23 (85.2%)
5 CIGARETTES: SAY-EASY	34	2	26 (76.5%)

*Control Group N=21 - no manipulation checks for this group.
**Total pass N=141 (74.6%)

TABLE 1.
Distribution of observers by condition who passed all manipulation checks.

CONDITIONS	PRE-TEST ABSTAIN1	POST-TEST ABSTAIN2
15 CIGARETTES CORRESPONDENT ACTS	7.51 (2.29)	3.33 (3.04)
5 CIGARETTES CORRESPONDENT ACTS	4.66 (2.12)	1.90 (1.69)
15 CIGARETTES ABSTAIN	7.29 (2.01)	6.47 (2.64)
5 CIGARETTES ABSTAIN	4.83 (2.89)	5.90 (2.68)
15 CIGARETTES SAY-EASY	7.37 (2.40)	5.74 (3.42)
5 CIGARETTES SAY-EASY	5.27 (2.34)	4.35 (3.02)
CONTROL	5.29 (3.15)	5.38 (3.11)

Table 2.
Ease of abstaining means and standard deviations on pre-test and post-test ratings

CONDITIONS	PRE-TEST QUIT1	POST-TEST QUIT2
15 CIGARETTES CORRESPONDENT-ACTS	2.33 (0.78)	3.60 (1.41)
5 CIGARETTES CORRESPONDENT-ACTS	3.34 (1.10)	3.66 (1.29)
15 CIGARETTES ABSTAIN	2.38 (0.82)	2.41 (1.18)
5 CIGARETTES ABSTAIN	3.41 (1.40)	2.24 (0.87)
15 CIGARETTES SAY-EASY	2.56 (0.93)	2.82 (1.11)
5 CIGARETTES SAY-EASY	3.32 (1.17)	3.35 (1.61)
CONTROL	3.38 (1.88)	3.05 (1.80)

Table 3.
Ease of quitting means and standard deviations on pre-test and post-test ratings.

CONDITIONS	PRE-TEST HOUR1	POST-TEST HOUR2
15 CIGARETTES CORRESPONDENT-ACTS	2.58 (4.01)	8.76 (9.01)
5 CIGARETTES CORRESPONDENT-ACTS	10.00 (8.47)	12.22 (9.33)
15 CIGARETTES ABSTAIN	3.74 (4.60)	4.12 (5.98)
5 CIGARETTES ABSTAIN	9.10 (8.04)	7.93 (8.05)
15 CIGARETTES SAY-EASY	3.59 (5.98)	3.30 (3.35)
5 CIGARETTES SAY-EASY	6.41 (5.90)	8.35 (6.63)
CONTROL	9.86 (8.77)	7.52 (7.45)

Table 4.
Number of hours the subject can go without a cigarette means and standard deviations on pre-test and post-test ratings.

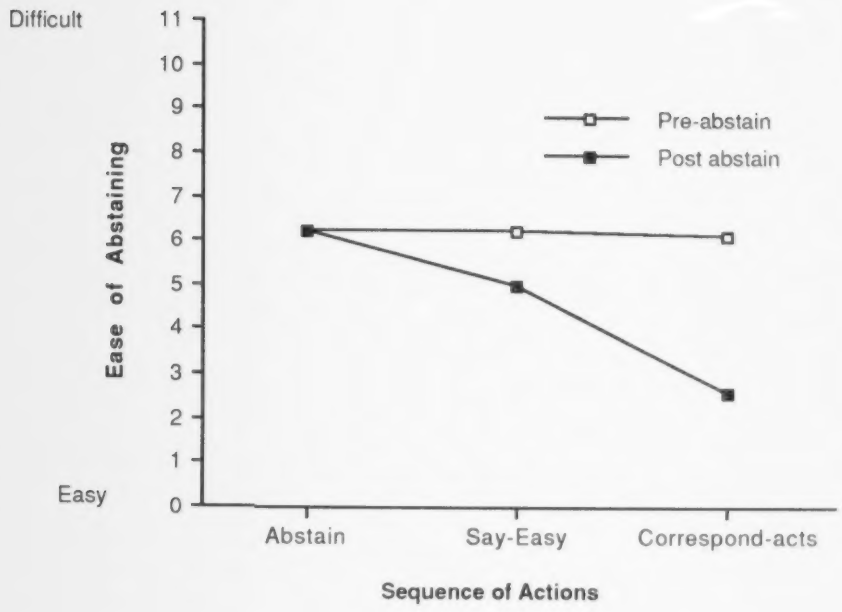

Figure 1
Pre- and post-test ratings of how easy it is to abstain from smoking by sequence of actions.

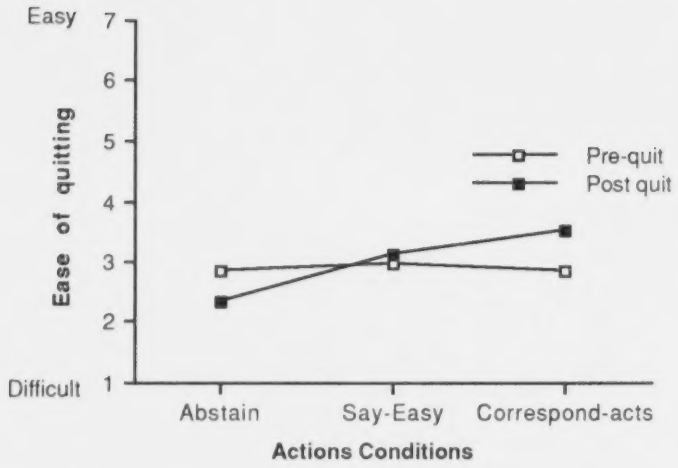

Figure 2
Pre- and post-test ratings of how easy it is to quit smoking by sequence of actions.

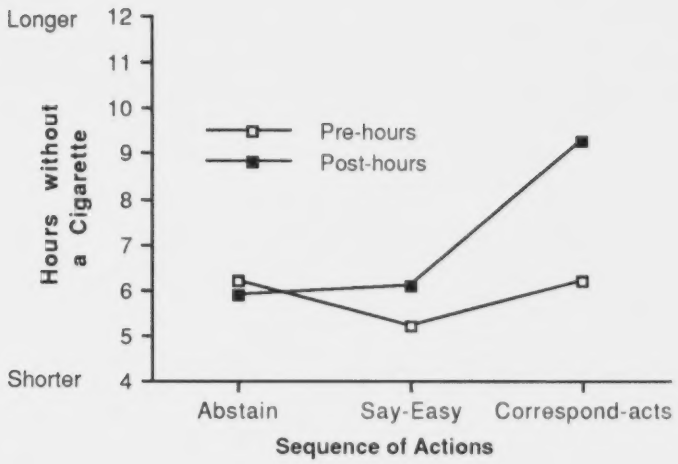

Figure 3
Pre and post-test ratings of how many hours the subject xcan go without a cigarette by sequence of actions.

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Review of the Literature

Introduction

The examination of attitude change has been one of the most fruitful areas of research in social psychology. Many theories have been applied to this phenomena, most prominently Festinger's (1957) theory of cognitive dissonance and Bem's (1965) self perception theory. The prominence of these theories in the literature stems from the fact that both have the capacity to predict attitude change across a wide variety of situations. Cognitive dissonance theory and self perception theory differ, however, in their interpretation of the factors effecting attitude change.

Cognitive dissonance and forced compliance

Originally, Leon Festinger (1957) proposed a theory of cognitive dissonance[5] as an explanation for attitude change under conditions of forced compliance. In the forced compliance paradigm, people are induced to act in a manner that is inconsistent with their initial attitude through the use of threats or incentives (Festinger, 1957). This inconsistency between ones initial attitude and a persons behavior produces an aversive psychological state called dissonance. The tension that is produced by "forced compliance" can be reduced by changing

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[5] Cognitive dissonance theory covers a very broad area of research in which a number of methods of inducing dissonance have been used. These methods include: 1) post decision making dissonance; 2) dissonance and self fulfilling prophecies (expectancy); 3) dissonance and effort justification; and 4) forced compliance. For the purposes of the present literature review, only the method of forced compliance will be addressed.

ones attitude in manner that consistent with what they are doing. The amount of dissonance and attitude change, however, depend on the discrepancy between the initial attitude and the counter-attitudinal action and whether there were outside factors that could justify having engaged in this action.

Methods of forced compliance

Some of the earliest work in cognitive dissonance theory involved performing a counter-attitudinal act and manipulating the amount of dissonance by providing incentives. To study this effect, researchers investigated two types of incentive conditions: negative incentives (threats) and positive incentives. Dissonance is manipulated in negative incentive conditions by varying the level of the threat (mild or severe) used to get a person to perform an attitude discrepant act. The rationale for this manipulation is that the greater the threat, the less the dissonance, and the less the person changes her attitude. (A detailed discussion of negative incentives will not provided because studies that use threats do not directly relate to the present thesis). Positive incentives work much the same way as negative incentives, except in this case the person receives something desirable in exchange for doing the task. That is, dissonance is manipulated by paying a person small or large sums of money to do the counter-attitudinal act.

The positive incentive condition has been one of the most commonly used procedures to induce cognitive dissonance. The application of positive incentives in this manner include: Doing a dull and boring task and telling another person that it is enjoyable for money (Festinger & Carlsmith, 1959); going without food for

money (Brehm & Crocker, 1962); writing a counter-attitudinal essay for money (Linder, Cooper & Jones, 1967); and making a counter-attitudinal speech for money (Helmreich & Collins, 1968). These studies are explored in further detail below.

Dull and Boring Task. In a classic study, Festinger and Carlsmith (1959) tested the propositions of dissonance theory by inducing subjects to perform dull and boring task and then asked them tell another subject that the task was actually enjoyable. Performance of the task served to manipulate the initial attitude so that all subjects found the task dull and boring. The subjects in this study were either offered a $1 or $20 for doing the counter-attitudinal act. After having performed this act, subjects were asked to rate their attitude towards the task. They found that subjects paid $1 found the task more enjoyable than those paid $20. They concluded that any incentive such as money used to get a person to perform an act that contradicts their initial attitude weakens dissonance.

According to dissonance theory, a person who is paid a large amount of money to go against her beliefs should have less dissonance than one who is paid a small amount. Dissonance is lower because subjects who were promised $20 had a good reason for saying the task was enjoyable (when it was not). That is, the promise of money justifies the counter-attitudinal act. In this regard, justification is a consonant element that is consistent with the person's knowledge about her behavior. Because of justification there is less discrepancy between what the person did and what they said, dissonance is minimal.

In contrast, subjects who were promised $1 did not have a good reason for telling someone that a dull task was enjoyable. These individuals experienced greater dissonance because a $1 is insufficient justification for telling a blatant lie. According to cognitive dissonance theory, the dissonance produced by the counter-attitudinal act can be reduced by changing ones opinion in a manner that is consistent with the action. Festinger and Carlsmith's findings supported this premise. Subjects in the $1 condition rated the task as more enjoyable than those in the $20 condition.

Festinger and Carlsmith study not only shows how positive incentives can be used to produce dissonance, but also how a large incentive can serve to moderate the level of dissonance produced by doing the counter-attitudinal act. The amount of dissonance and attitude change thereby depend on the discrepancy between the initial attitude and the counter-attitudinal action and whether there were outside factors that could justify having engaged in this action.

Deprivation. In a study by Brehm and Crocker (1962), food deprived male subjects were asked to commit themselves to continue going without food for another 8 to 9 hours. Subjects were offered either $5 or nothing for committing themselves to this action. Immediately after complying with the request, the subjects were asked to rate their hunger. As predicted by dissonance theory, Brehm and Crocker found that subjects who received no payment rated themselves as less hungry than subjects who were paid $5.

This finding fits with the predictions of dissonance theory. Subjects in the no payment condition did not have a sufficient reason for agreeing to continue going without food. As a result, dissonance produced by agreeing to go without was high which in turn was reduced by rating there hunger level as low.

Writing a counter-attitudinal essay: One of the general findings of the studies discussed above is the less the incentive, the greater the dissonance, and the greater the change in attitude[6]. Moreover, the generality of this finding has led researchers to question when and under which conditions does the dissonance effect occur.

In a study by Linder, Cooper and Jones (1967), they showed that the timing of the incentive is an important factor in producing a dissonance effect. That is, the offer of money must come before the person has committed themselves to doing the task. The person must feel apprehensive about the task and the offer of an incentive must be linked to the counter-attitudinal act. A small incentive would then increase the level of apprehension, whereas as a large incentive would decrease it. In contrast, if the incentive is offered after the person has committed themselves to doing the task, the level of apprehension can no longer be manipulated.

Subjects wrote an essay favoring the North Carolina Speaker-Ban Law which at the time was a highly controversial issue concerning the fifth amendment rights

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[6] These findings, however, have been disputed by the Yale school, in particular research conducted by Janis and Gilmore (1968). Contrary to dissonance theory, their research suggests that the higher incentive, the greater the change in attitude.

of those advocating communism. Either subjects were told that they had to write an essay (no choice condition), or were given a choice to write an essay (free decision condition). In the free-decision condition, subjects were immediately told that they would be paid $.50 or $2.50 for writing the essay. Subjects in the no choice condition, however, were only offered this incentive after they had committed themselves to the task. Following this manipulation, subjects were asked to indicate their opinion about the speaker ban law. The control condition subjects were simply asked to rate their opinion on this issue.

According to Linder et al., if subjects have a chance to consider the magnitude of the incentive before complying with the experimenters request a typical dissonance effect occurs. That is, if the incentive is large it justifies complying with the request and dissonance is minimal. If justification is insufficient, compliance with the request will produce greater dissonance. In accordance with cognitive dissonance theory, they found those paid $.50 agreed more with their essays than subjects who paid $2.50.

In contrast, when subjects were not given a choice to comply an inverse effect occurred. That is, subjects agreed more with the essay they had written when they received $2.50 than when paid only 50 cents. This result is because the incentive was promised after the subjects had been forced to comply with the experimenters request and the incentive then became a reward for having written the essay. In this regard, the essay is associated with something of value.

This positive relationship between magnitude of the incentive and attitude change has also previously been observed in other studies (e.g. Janis & Gilmore, 1965; Rosenberg, 1965). Importantly, the Linder et al. study shows when and under which condition dissonance can be manipulated to produce the predicted attitude change. That is, a delay in the timing of the incentive produces the opposite effect of a dissonance theory prediction, with respect to the magnitude of the incentive.

Speeches. The study by Helmreich & Collins (1968) serves to further clarify the conditions under which a dissonance effect is observed[7]. To clarify the predictions of dissonance theory, incentives and level of commitment to the counter-attitudinal act were manipulated. Subjects were enticed to make counter-attitudinal statements concerning compulsory government control of family size. A pretest had revealed that 95% of polled students disagreed with this type of control. To test the dissonance effect, commitment was varied on 3 levels: subjects were asked to make counter-attitudinal arguments in which their statements were either anonymously tape recorded (low commitment), or video recorded (high commitment). In the latter condition, subjects either were given or

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[7] Interestingly, Helmreich and Collins noted that five previous attempts aimed at clarifying the predictions of dissonance theory had failed (Helmreich & Collins, 1968:76). A number of unpublished studies attempted to produce a dissonance effect by having subjects write public high commitment essays. The failure of these studies to produce the effect using committed essay writing then also helps to clarify the conditions under which commitment and dissonance can be manipulated. Obviously, the task of essay writing has limited utility when it comes to manipulating commitment.

not given an opportunity to recant their statements. Subjects in each condition were also offered either a low incentive ($.50) or a high incentive ($2.50) for having made the counter-attitudinal recording.

Helmreich and Collins showed that commitment and incentive interact. Attitude change was found to be negative when commitment was high and the incentive varied from a low to a high value. In other words, committed subjects agreed more with their statements when they received a small amount of money than a large amount. In contrast, attitude change was found to be positive when commitment was low and the incentive were varied. Simply, subjects who were not committed to their statements changed their attitudes more when they received more money.

Importantly, this study shows that the level of commitment is an important condition for dissonance arousal. The more committed a person is to a position, the greater the arousal of dissonance produced by performing the counter-attitudinal act; in turn, greater attitude change will be required to reduce the dissonance. However, as Helmreich and Collins' study also shows, the effects of commitment on dissonance can be moderated by manipulating the level of incentive.

These attempts to specify the condition under which dissonance theory can be applied have also given rise to alternative interpretations. Most notably, Bem's "alternative interpretation of the cognitive dissonance phenomena" - self perception theory (Bem, 1965, 1967).

Bem's self perception theory

As an alternative account of attitude change, Bem (1965) proposed a theory of self persuasion[8]. In this theory, the update of an attitude is a function of behavior and the situation rather than aversive internal states (dissonance)[9]. He states that:

> an individual's belief and attitude statements may be predicted and controlled by manipulating overt behavior and the stimulus conditions under which it occurs in a way that would lead an outside observer to infer that the individual held the belief or attitude we wish to obtain (Bem, 1965:200).

Statements about attitude are viewed as verbal responses that can be manipulated by changing the external cues of behavior and context.

The rationale for suggesting that others can infer our attitudes stems from Bem's self perception hypothesis: "In identifying {one's} own internal states, an individual partially relies on the same external cues that others use when they infer {an individual's} internal states" (Bem, 1970:60). Basically, a person learns to respond differentially to her behavior by describing her actions as true beliefs or saying she does not believe what says and does. These differential verbal responses are trained through social interactions with the community (Bem, 1965:199). As a result of these interactions, people come to rely on external cues to infer attitudes. As Bem points out, it is behavior that is central in this analysis in

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[8] Bem (1965) first referred to his theory as self-persuasion. This later became known as self-perception theory (Bem, 1967).

[9] Bem's interpretation specifies that attitudes are updated rather than changed.

that internal cues are often weak, ambiguous or not interpretable (Bem & McConnell, 1970:23). Thus, people learn to focus on their own behavior and its context to infer their disposition. It follows, then, that others in the community who received the same training should be able to reach the same conclusion as we ourselves did when provided with the same external cues (Bem:1965:200).

Communicator credibility and self persuasion. Central to the discussion of inferences about attitude is the issue of communicator credibility. In order for an observer to draw conclusions about the attitude of a subject based on her communication, it must be deemed credible (Bem, 1965:201).

Bem used Skinner's (1957) analysis of verbal behavior to discuss communicator credibility. The speakers verbal responses or statements may be classified as either mands or tacts. A mand is a class of verbal response that is controlled by specific reinforcement. For example, in a restaurant a customer who is eating french fries may state "please pass the ketchup" to a person at another table. This statement is mand if receiving the ketchup reinforces the verbal response. Another type of verbal response is called a tact. Tacts are a class of verbal responses controlled by non-verbal discriminative stimuli. To illustrate, a person who is looking at the sunset may state "that is a beautiful sunset". If the sunset sets the occasion for this response (or similar responses) then the statement is a tact.

Listeners or observers are trained to discriminate the speakers communication on the basis of the mand-tact characteristics of verbal responses.

Often a speaker's communication is ambiguous in the sense that the controlling variables are not easy to discern. For example, the verbal response "I believe you have the sports page" is unclear in terms of whether the response is a mand or a tact. That is, the response may simply describe the fact that the reader is holding the sports page (tact) or it may be that the person wants the sports page (mand). The listener can clarify the situation by responding "why yes I do" and continuing to read the paper. If the response is a mand, it will become more precise, such as "well, can I have it". Thus, listeners or observers are always testing the mand-tact properties of the communication.

In terms of benefits, mands occur for the benefit of the speaker and tacts work toward the benefit of the listener. The mand is set-up by the verbal community so that speakers can "get what they want". In contrast, the tact, is set-up for the benefit of the community of listeners who may behave more effectively based upon the words of the speaker. For example, a traveller who requires directions is told how to get to the nearest hotel. Clearly, the traveller benefits from the speakers tact (statement of directions). Based on the verbal contingencies (benefits and costs), listeners differentially respond to mands and tacts by speakers. The listener is more inclined to do what the speaker tacts (i.e. follow the directions) than what the speaker mands (i.e. give me money). By implication, the speaker is more credible when the communication has the appearance of a tact than when it is taken as a mand.

As a direct test of self persuasion, Bem (1965) designed an experiment to manipulated communicator credibility. A conditioning procedure was used to create truth and lie signals. Subjects were trained to respond differentially in the presence of two colored light. A tape recorder was switched on and either a green or an amber light appeared. Subjects were asked to make true statements about themselves in the presence of the amber light and false statements in the presence of the green light. In this regard, the subjects learned to believe what they said in the presence of the amber light and to disbelieve their statements in the presence of the green light.

Subsequent to the conditioning phase, subjects were asked to state that cartoons were either very funny or very unfunny. Subjects had previously rated the cartoons as neutral in terms of humor. The experimenter stated that he was going to use the subjects' statements in another experiment. In order to do this, the comments were tape recorded and inadvertently either a green or amber light appeared just before the subjects stated their opinions. After each recorded statement, subjects rated their true attitude about the cartoon.

The results showed that subjects changed their opinions more in the presence of a truth light than in the presence of a lie light. For example, a subject who said "this is a very funny cartoon" when the amber light appeared came to believe that the cartoon was funnier than when the green light appeared. Interestingly, Bem also noted that subjects were unaware that they had changed their attitudes based on their statements and the lights.

Bem's interpretation of Festinger & Carlsmith's study (1959). Bem suggests that the truth-lie light procedure is similar to offering either a small or a large incentive. That is, small and large incentives work like truth and lie signals telling the subjects when to believe what they said. To test this assumption, Bem (1967) designed an interpersonal replication of the major conditions of Festinger-Carlsmith's (1959) study of forced compliance. Observers were given descriptions of a subject in each condition as in the Festinger-Carlsmith experiment. Rather than having subjects perform the dull and boring task, Bem had them listen to a detailed audio tape of the Festinger-Carlsmith study. Hence, the subject who makes the inference of attitude (known as an *interpersonal observer*) is an outside observer (Bem, 1967:188). This manipulation ensured that inference of attitude could not be due to dissonance reduction. That is, interpersonal observers cannot be said to be in a state of dissonance because they are not asked to perform the dissonance arousing task. Any change in attitude, then, must be due to altered perception based on the publicly observable cues.

After listening to the audio tape, observers were asked to infer the subjects attitude with respect to rating the task. Observers who heard the subject say that the dull task was enjoyable for only $1 believed that the subject liked the task more than observers who heard that the subject make the statement for 20 dollars. This finding replicated the results of the Festinger-Carlsmith (1959) study. Bem's interpretation of this finding is that the observer used the external cues of behavior and incentive to arrive at an inference of attitude.

According to Bem, the monetary incentive paid to the subject is viewed as an important external cue that observers use to infer attitude. Observers who heard that the subject was paid $20 and then heard him tell the next subject the task was fun, viewed the money as a sufficient reinforcer for saying the task was enjoyable. That is, he said it was fun because he was paid a lot of money. In contrast, observers viewed being paid only $1 for saying a dull task is fun and enjoyable as is an insufficient reinforcer. Since there was no outside reason for the subject to say he enjoyed the task, observers concluded that he must have enjoyed it. In light of these findings, Bem concluded that attitude change does not need to rely on a state of dissonance; rather external cues based on behavior in context regulated self description of attitude. In sum, the findings suggest that self perception theory is capable of producing similar results as dissonance theory using interpersonal observers.

The similarity in the pattern of results found in Bem's replication of the Festinger-Carlsmith (1959) study has further served to multiply the number of research articles published in this area. Furthermore, many of these articles have attempted to refute the findings reported by Bem. Researchers have called into question the methodology, as well as the theoretical tenants, employed by self perception theory (Jones, Linder, Kiesler, Zanna & Brehm, 1968; Chris & Woodyard, 1973; Harris & Tamler, 1973; Shaffer, 1974; Taylor, 1975; Shaffer & Tabor, 1980; Zanna, Olson & Fazio, 1981). This criticism is addressed in the next section.

Criticism of Bem's method - Initial Attitude

One of the major criticism against self perception theory has been with respect to the salience of the initial attitude (Jones, Linder, Kiesler, Zanna & Brehm, 1968). That is, should observers be told how the subject felt about the task prior to the manipulation. In an interpersonal replication, the initial attitude of the subject is not disclosed to the observer. Dissonance theorists, however, contend that the conflict between what a person thinks (ones initial attitude) and what she has done (the counter-attitudinal act) is critical to the discussion of attitude change. They argue that in eliminating this information, an interpersonal simulation fails to reproduce the major conditions set out in a forced compliance experiment.

To prove that the interpersonal replications reported in Bem's (1965) study would not have produced the findings reported, Jones et al. (1968) conducted a series of experiments along the same lines as reported by Bem (1965). Included in these experiments were a number of conditions in which initial attitude was made salient to the observer.

The first study dealt with Bem's (1965) interpersonal replication of Cohen's (1962) study in which subjects wrote an essay on police action New Haven. Similar to Cohen's findings, Bem found that observers believed that subjects who were paid $.50 agreed more with their essays than those paid $1.00.

To refute these findings, Jones et al. designed four situational essay writing description in which initial attitude was manipulated and two levels of payments ($.50 and $1.00) were cross-indexed. Observers were asked to estimate the

attitude of a person paid $.50 and $1.00. The four situational description involved by either informing the observer of the subjects initial attitude (Bem condition), and told that the subject was pressured into writing the essay (extra-pressure condition), or they were told a particular essay writer's opinion (modified Bem condition), or they were ask their own opinion would be if they had to write an essay (say-easy condition). Contrary to self perception theory, Jones et al. found that observers rated $1 essay writer as more in favor of their essay than the $50 writer.

In a second related study, situational descriptions were varied along seven conditions. The first three conditions were in accordance with Bem's (1965) study. The next two conditions (nonrandom condition) involved telling the observer that a subject with a negative opinion had been selected to write an essay and told that they were either paid $.50 or $1.00. In the final, two conditions (complete instruction) observers were informed that subjects had been given numerous reasons for writing the essay and that they were paid $.50 or $1.00. They found that when Bem's method on interpersonal replication was applied, the inferences of observers were similar to those of the subject. The findings reported for the four additional conditions, however, supported their criticism of Bem's experiment. Observers in the nonrandom condition inferred the opposite of what was reported by the subjects and the findings reported for the complete instruction condition showed no difference between the condition.

In another study, Jones et al. (1968) replicated Bem's (1965) interpersonal replication of Brehm and Crocker (1962) hunger study. The same conditions as reported in Bem (1965) were used, excepted that observers were given the average opinion of the subjects or a particular subjects opinion. In either of these conditions, observers were unable to reproduce the self-ratings of the subject.

In sum, the findings of the three studies reported by Jones et al. (1968), supported their claim against the method of interpersonal replication. These experiments refuted the findings reported in Bem (1965) study. Furthermore, their findings showed that a self perception based analysis cannot produce the same results as the original dissonance study when observers are given information pertaining to the initial attitude.

Bem's response to this criticism

In addressing this criticism, Bem suggested that telling an observer about the subjects initial attitude is not a necessary procedure. Furthermore, he argued that dissonance theorists have misunderstood the interpersonal simulation method (Bem & McConnell, 1970:24). Recall that self perception theory views the inference of final attitude as being based on available external cues rather than an inconsistency between initial attitude and behaviour. The method of interpersonal replication does not require that an inconsistency between the initial attitude and the counter-attitudinal act be resolved.

Bem claims that the inconsistency experienced by the subject in the dissonance experiment is also no longer salient following manipulation (Bem &

McConnell, 1970:24). That is, there is no conflict once the attitude of the subject has been changed. He therefore contends that if the subject no longer feels a conflict it would be irrelevant to make the initial attitude salient to the observer (Bem & McConnell, 1970). Furthermore, he asserts that providing this information to the observer it would only serve to shift the focus away from the relevant external cues. In addition, Bem suggests that supplying observers with the subject's initial attitude defeats the purpose of an interpersonal simulation - "the observer is no longer a stand-in for the original subject" (Bem & McConnell, 1970:25).

Although Bem's response to the criticism associated with the salience of the initial attitude serves to better explain the method of interpersonal replication, the debate over the interpretation of findings generated by each theory has continued. Scores of studies on either end have attempted to prove the merit of one theory over the other by applying them to a whole range of situations concerning attitude change. Moreover, a number of researchers also began to question the proper domain of each theory (Weiner, 1974; Green, 1974; Greenwald, 1975; Fazio, Zanna & Cooper, 1977; Ronis & Greenwald, 1979). This debate unfortunately has never truly resolved[10].

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[10] According to Greenwald (1975), the predictions put forth by cognitive dissonance and self perception theories are not unequivocally contradictory. He argues that both have the capacity to account for the findings predicted by the other because they are both part of the same broader class of theories (Greenwald, 1975:491). The choice then of which theory to use is a matter of the individual researcher's preference rather than the choice being dictated by empirical findings (Bem and McConnell, 1970). This analysis of the proper domains of each theory, then, at best is a

Dissonance and Double Forced Compliance

In 1986 Joule reported a new extension of cognitive dissonance theory. Joule (1991a, 1991b) showed that dissonance theory may be extended to two counter-attitudinal acts. He referred to this innovation as 'the double forced compliance paradigm'. In this paradigm, the effects of two acts of forced compliance on dissonance reduction are examined.

According to Joule, two counter-attitudinal acts should lead to greater dissonance than a single act. This is because the dissonance induced by the first and the second act are assumed to be cumulative (Joule, 1991b:840). To clarify, each act of forced compliance produces a certain amount of dissonance. The dissonance from each action adds up and a larger shift in attitude is required to reduce dissonance. In sum, attitude change is predicted to be greatest following the execution of two counter-attitudinal acts when compared with a single counter-attitudinal action. To test these assumption, Joule has performed a number experiments.

The experiment replicated in this thesis, is one in which Joule (1991b) used a deprivation behavior (i.e. abstaining from smoking) and a counter-attitudinal role-play (i.e. telling another person that it is easy). Joule chose subjects who smoked at least 15 cigarettes a day and placed them into one of four experimental

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compromise.

conditions[11]. In the first condition, the subject agreed to abstain from smoking (and presumably did) for a period of 18 hours. Subjects in the second condition told another person that abstaining was easy. In the third condition, subjects performed both of these acts. Subjects in the control condition were asked to 'put themselves in the shoes' of a subject who had been asked to abstain from smoking (Joule, 1991b:843). Dissonance reduction was then measured by having subjects respond to the following question before (pretest measure) and after (post-test measure) they abstained, told another person that it is easy or did both of these acts: "If you were asked to abstain from smoking right now and refrain from smoking for the next 24 {hours}, would you find it...?" (Joule, 1991b:841). As predicted, subjects indicated that it was less difficult to abstain following the execution of both of these behaviors.

Joule's findings were reported in terms of the mean difference between the pre-test and post-test ratings. Observers' pre-test scores were subtracted from their post-rating score and the average difference for each condition was reported. The results indicated a significant difference between the pre- and post-test scores

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[11] To entice subjects who are heavy smokers to participate in his study, Joule used two deception tactics (Cialdini et. al., 1978; Joule, 1987; Joule et. al., 1988). First, he offered subjects a large amount of money for participating. Later, subjects were told that they would actually receive a substantially smaller sum. This reduction in payment ensured that subjects could not justify their actions in terms of the money (Festinger & Carlsmith, 1959). The second deception tactic was that subjects were not initially told they had to abstain from smoking. Only after they had agreed to participate in the study were they informed of this requirement. These tactics made it difficult not to comply with the experimenter's request to abstain from smoking.

in the condition requiring two counter-attitudinal acts. Subjects reported that it was less difficult to refrain from smoking for a day after having agreed to abstain from smoking and telling a person that this was easy to do. The shift in attitude change was largest in this condition. This finding supported Joule's prediction that engaging in two counter-attitudinal acts produces the most attitude change.

In the conditions where the subject either abstained or told another it was easy to abstain from smoking, the subjects said that it was *more* difficult to give up smoking for a day after having performed one of these acts. The mean difference between the pretest to the post-test measures in this cases were positive, indicating greater difficulty abstaining. This is an unexpected result. Subjects who actually abstained from smoking should have found it easier to abstain than those who merely reported it was easy to abstain. Instead, Joule found that those who actually abstained found it harder.

Another unusual result concerned the control group. In this condition the difference between the pre- to post-test measure resulted in a large positive difference - suggesting that the control subjects found it harder to abstain. Since these subjects were not exposed to any dissonance arousing stimulus, there is no theoretical explanation to account for their change in rating. Based on cognitive dissonance theory, these subjects should have shown minimal to no change in rating. The results of this experiment therefore did not fully support the theoretical predictions of the dissonance model. Only the double forced compliance condition resulted in the correct prediction.

In another study using the double forced compliance situation, Joule (1991a) made subjects perform a deprivation behavior (abstain from smoking) and write either a pro- or anti-smoking essay. In this study, dissonance was calculated with respect to the deprivation behavior - giving up smoking (Joule, 1991a:121). The rationale for this calculation is that the deprivation behavior is considered to be more resistant to change. The deprivation behavior is more resistant to change because giving up smoking requires greater commitment than writing an anti-smoking (Kiesler, 1971).

According to Joule, commitment follows from three separate factors: explicitness of the act, repetition of the action and the importance of the act to the subject (Kiesler, 1971; Joule, 1991b:840). First, the act of abstaining from smoking is a more *explicit act* than writing an essay on the ease of abstaining. The former act is more explicit because it is less ambiguous and more public than the latter. For example, if a person gives up smoking for 18 hours, other people who know this person will probably notice that she has not been smoking. In contrast, if a person writes an essay, only one the person that reads the essay will know that she has made this statement Giving up smoking is also a more obvious response in terms of a belief that it is difficult to abstain from smoking. Because it is more obvious, giving up smoking generates greater commitment and more dissonance than just saying that it is easy to abstain. Furthermore, abstaining from is a more *repetitious action* because it is a continuous process, whereas reporting that it is easy to abstain occurs only once. Each time the smoker feels a need to smoke

she repeats the deprivation behavior of not smoking and increases her commitment to the counter-attitudinal action. Finally, the act of abstaining and writing an essay differ in terms of the *importance of the action*. Abstaining from smoking is more salient to a person than merely writing an essay because the act of abstaining is more difficult to do. Based on these commitment factors, Joule designed a study to test the implications of commitment for dissonance and attitude change.

Given that the deprivation behavior requires greater commitment and is therefore more resistant to change, Joule (1991a) argued that writing an anti-smoking essay would generate less dissonance than writing a pro-smoking essay. This is because writing a pro-smoking essay adds another dissonant element whereas writing an anti-smoking essay would add a consonant element. That is, writing ant-smoking essay is consistent with giving-up smoking and writing a pro-smoking essay is inconsistent with this act. Joule (1991a) reported that subjects who gave up smoking and then wrote an anti-smoking essay indicated that it was more difficult to abstain from smoking. In contrast, those who wrote the pro-smoking essay after having abstained from smoking indicated that it was less difficult to abstain.

Sequence of Actions vs Dissonance Reduction

According to Bem (1965, 1967, 1970) people make inferences about their attitudes when exposed to information concerning their actions. Recall that observers also use actions to infer the attitudes of others. Furthermore, studies by

Bem (1965, 1967) have shown that inferences about attitudes are updated when actions have high credibility. It follows then the credibility of an action can be enhanced if it has been preceded by a similar action. For example, saying that it is easy to abstain from smoking is more credible to both the person and an observer when the communication has been preceded by a successful act of abstaining. That is, the corresponding actions of "doing X" and "saying X" together result in a strong inference about attitude (e.g., the belief that it is easy to abstain). Thus, it is also possible that smokers in Joule's (1991b) study believed it was easier to quit because the communication (saying it is easy to abstain) was more credible after they had successfully abstained.

In a series of experiments, Bem showed that communication could be made more or less credible by varying the incentive conditions. For example, people who are paid a trivial amount of money, to say that a dull and boring task is "fun and enjoyable", are believed. These people are more believable because their actions (i.e. the task is fun) cannot be attributed to being paid a small sum of money. In contrast, people who are paid a large sum of money to make the same statement are not believed. In this case, the person said what they did because they were paid a large sum of money. Importantly, Bem argues that subjects in a dissonance experiment also use their actions and the incentive conditions to infer their attitudes toward the task.

In terms of Joule's experiment, it is possible that subjects used the sequence of actions to infer their attitudes toward smoking. When smokers

abstained from smoking and stated that it was easy, the correspondence between their actions could serve as an external cue for an inference that it was easy to give-up smoking. Each of the single acts alone would be an ambiguous cue and lead to a weaker inference about one's attitude. This analysis implies that subjects in Joule's experiment were affected by communicator credibility rather than cognitive dissonance.

Conclusion

In terms of attitude change research, cognitive dissonance and self-perception theory have competed over the most appropriate interpretation of the findings. In essence this debate centres on, when and under which conditions should cognitive dissonance or self perception theory be applied. To date, this debate has never been settled.

Joule's research on double forced compliance was an attempt to settle this debate. That is, his research suggest that the double forced compliance situation could only be interpreted by dissonance theory. The present thesis, however, shows that self perception is also capable of interpreting the double forced compliance situation.

This thesis showed that observers conclusions about the smoker's attitude towards smoking were consistent with the attitude change shown by the actual smokers in Joule's (1991b) dissonance experiment. Furthermore, the present experiment was the first study to allow observers to draw conclusions about the initial attitude of a subject in a dissonance experiment. Results showed that

observers' inferred a stronger initial attitude in favor of smoking when the subject smoked 15 cigarettes a day than when she only smoked 5 cigarettes a day. This difference in initial attitude did not affect the observers' conclusions about the actor's subsequent attitude. Thus, the claim by dissonance theorists that observers are unable to reproduce the self-rating of the subject when provided with information concerning the subject's initial attitude (Shaffer, 1974; Fazio, 1980; Jones, Linder, Kiesler, Zanna & Brehm, 1968; Harris & Tamler, 1973) was not supported.

In looking beyond the classic forced compliance situation, the present thesis signals a new approach to attitude change research. The effects of sequence of action on observers' conclusions about attitudes towards smoking has served as a useful starting. Future research would do well in examining these effects in other double forced compliance situations.

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Appendix 1: VIDEOTAPE SCRIPTS

A. Corresponding-actions condition

Screen:	Impression Formation Study
Announcer:	The preliminary survey is read (see appendix for content). Note: an approximate 15 second delay is given after each question to standardize the time taken to answer each question.
Screen:	Day One
Setting:	The experimenter and Judy are in the lab. The camera is focused on Judy as the experimenter begins to explain what she will be doing in this experiment.
Experimenter:	Your here for an experiment
Judy:	Right
Experimenter:	You understand that this is an experiment on concentration.
Judy:	Ihmm
Experimenter:	And that we will be having people that are smokers and non-smokers.
Judy:	Yes
Experimenter:	In this the first part of the experiment we need to get an accurate estimate of how much you smoke.
Setting:	Camera angle changes to show that there is a package of cigarettes is on the table next to Judy.
Experimenter:	And so what we are going to ask to do is to ah take that package of cigarettes in front of you there and ah count out the number of cigarettes that feel you smoke a day. Just take them out and count them like one, two, three, four and so on.
Judy:	Take them out?

Setting:	Judy is holding the package of cigarettes in her hand.
Experimenter:	Until you feel that's the number that you smoke a day.
Judy:	And take them right out.
Experimenter:	Just take them right out of the package, put them down on the table in front of you.
Setting:	Judy begins taking the cigarettes out of the package one at a time while counting out loud.

{Strong Initial Attitude}: Judy counts out 15 cigarettes.

{Weak Initial Attitude}: Judy counts out 5 cigarettes.

Experimenter:	Could you speak up please
Judy:	About 15 [5] cigarettes.
Experimenter:	So you say you smoke about 15 [5] cigarettes
Judy:	Yah
Experimenter:	That's on a per day basis
Judy:	Yah 15 cigarettes a day
Experimenter:	So that's 15 cigarettes on a daily basis. Okay thank you
Judy:	Thank you
Setting:	Paper and pen in front of Judy on the table.
Experimenter:	Okay we are going to proceed with the concentration experiment tomorrow.
Judy:	Ihmm
Experimenter:	And it's going to take about an hour
Judy:	An hour..okay

Experimenter:	And for that hour you will be paid 6 dollars
Judy:	Okay so 6 dollars
Experimenter:	Yah, you will be paid 6 dollars for the hour
Judy:	Okay
Experimenter:	Ah and like I said the experiment is really going to take place tomorrow
Judy:	Yah okay
Experimenter:	But before you leave today I was wondering if you could answer a question for me
Judy:	Ihmm
Experimenter:	If you were asked to abstain from smoking right now and to refrain from smoking for the next 24 hours...how hard would you find it? I just want you to indicate that on the piece of paper in front of you...you see the scale
Judy:	Yah
Experimenter:	Could you fill that in then
Judy:	Okay
Setting:	Judy looks over the paper and fill in the scale. Note: her answer to this question is not shown
Experimenter:	Thanks a lot
Judy:	Okay
Screen:	Initial Survey
Announcer:	The announcer reads out the initial survey
Experimenter:	Before you leave
Judy:	Huh

Experimenter: Could you sit down for a moment

Judy: Yah

Experimenter: I forgot to mention an important part of the experiment

Judy: Yah

Experimenter: Ah, we're going to be asking participants in the smoking part of the experiment to abstain from smoking for 18 hours in order to observe this effect on concentration....so I'm going to ask you to give-up smoking for 18 hours starting now

Judy: You want me to not have a cigarette from now till 18 hours from now

Experimenter: yes when you come back to the experiment tomorrow

Judy: Ya..okay..uhm

Experimenter: You think you can do this

Judy: Yah..I can do that

Experimenter: You sound redescend...I guess everybody is redescend at this but it's very important for the study...okay...you think you can proceed to give-up right now smoking for 18 hours

Judy: Yah for 18 hours

Experimenter: And would you sign a contract that you will do this

Judy: Yes

Experimenter: You see if you don't it would reck-up our study

Judy: Okay..yah..yah

Experimenter: And you will sign a contract

Judy: Yah

Experimenter:	Okay...here's the contract...could you look it over and then sign it
Setting:	Experimenter hands Judy the contract
Experimenter:	You'll notice that it say that you promise to refrain from smoking for 18 hours
Judy:	Okay
Experimenter:	Thank you
Judy:	Okay..that's it
Experimenter:	That's it for today
Screen:	Day Two
Setting:	Judy and the experimenter are sitting at the table. The camera is focused on Judy and the experimenter is just off to the side of the table and his face is just outside of view. Judy is now wearing a different shirt
Experimenter:	Nice to see you back here today
Judy:	Hi
Experimenter:	We're going to proceed with the concentration part of the experiment today and essentially I'm going to be showing you some black and white slides with different figures in them and I'm going to ask you to call-out whether there is more black or whit in each slide that I show you. And, I want you to do this with-out thinking.
Judy:	Okay
Experimenter:	Don't try to think too much...just call-out whether you see more black or white.
Judy:	Okay
Experimenter:	Try to concentrate on it...okay
Judy:	Okay

Setting:	The experimenter holds-out a slide and asks Judy to indicate which slide has more black or more white. Approximately 20 to 25 slides are shown in total.
Experimenter:	Thanks a lot
Judy:	That's it
Experimenter:	For now
Judy:	Thanks
Experimenter:	Just before you go, I wonder if you could do a favor for me
Judy:	Yah
Experimenter:	It won't take long
Judy:	Okay
Experimenter:	I have to leave for a few minutes and ah could you tell the person who is waiting in the hall what the experiment is a ll about and that you stopped smoking and that it wasn't that hard so that they'll participate in the study
Judy:	Oh, okay...so tell them what it's about and that I stopped for 18 hours
Experimenter:	Ya and that it wasn't that hard
Judy:	Oh, okay..sure
Experimenter:	Thanks a lot
Judy:	You're going to come right back
Experimenter:	Yah, I'll be back after to you talk to the person...I just have a phone call.
Judy:	Oh okay
Setting:	The next subject walks in the room

Judy:	Hi there
Subject 2:	Hi I'm Tracy
Judy:	I'm Judy....you're the next person for this experiment.
Subject 2:	Ya, that's right
Judy:	Okay, I was just in it.. the guy who is in charge has left but he's coming back in a few minutes but he wanted me to tell you a little bit about it
Subject 2:	Okay, go ahead...I have no idea what I'm suppose to do
Judy:	Yah, well like I'm a smoker
Subject 2:	Yah, me too
Judy:	Well they asked me to quit smoking for 18 hours and come back and do these concentration tests with these pieces of paper that they showed me
Subject 2:	Just a minute you had to quit smoking for 18 hours
Judy:	Yah
Subject 2:	From when yesterday
Judy:	Yesterday when I came they asked me to stop smoking and then come back today
Subject 2:	Is that what they are going to ask me to do
Judy:	Ya, I think so, ya.
Subject 2:	And, did you do it
Judy:	Ya...I mean I thought it would be really hard but I ah left here and I didn't have a cigarette and then I went home and I made dinner, you know, watched tv and went to bed...I didn't have any cigarettes

Subject 2:	I don't know I find that hard to believe...I talked to some people that done experiments like this and they said it was practically impossible to stop smoking for that long.
Judy:	No it wasn't actually. Actually it was really easy ...believe it or not.
Subject 2:	It was easy huh...No, I don't know. It sounds like it was really hard to do
Judy:	No I didn't find it very hard at all.
Subject 2:	So you just kept yourself busy and you were able to..
Judy:	Yah afterwhile in fact I didn't even think about it. So any way that's what the study is about.
Subject 2:	So that's what they'll ask me to do
Judy:	I think so yah.
Subject 2:	And you found it easy
Judy:	Yah...yah
Subject 2:	It's good to talk to somebody about it...yah cause I heard it was really hard from other people. I almost didn't come.
Judy:	No I thought it was really easy...so anyway that's what it's about...so...good luck with it
Subject 2:	I guess I'll just wait here till the experimenter gets back.
Judy:	Yah...he should be back any minute now
Second 2:	Well it was nice talking to you.
Judy:	Nice meeting you...good luck.
Screen:	Survey
Announcer:	The announcer reads the post survey.

B. Abstain condition

Screen:	Impression Formation Study
Announcer:	The preliminary survey is read (see appendix for content). Note: an approximate 15 second delay is given after each question to standardize the time taken to answer each question.
Screen:	Day One
Setting:	The experimenter and Judy are in the lab. The camera is focused on Judy as the experimenter begins to explain what she will be doing in this experiment.
Experimenter:	Your here for an experiment
Judy:	Right
Experimenter:	You understand that this is an experiment on concentration.
Judy:	Ihmm
Experimenter:	And that we will be having people that are smokers and non-smokers.
Judy:	Yes
Experimenter:	In this the first part of the experiment we need to get an accurate estimate of how much you smoke.
Setting:	Camera angle changes to show that there is a package of cigarettes is on the table next to Judy.
Experimenter:	And so what we are going to ask to do is to ah take that package of cigarettes in front of you there and ah count out the number of cigarettes that feel you smoke a day. Just take them out and count them like one, two, three, four and so on.
Judy:	Take them out?
Setting:	Judy is holding the package of cigarettes in her hand.
Experimenter:	Until you feel that's the number that you smoke a day.

Judy: And take them right out.

Experimenter: Just take them right out of the package, put them down on the table in front of you.

Setting: Judy begins taking the cigarettes out of the package one at a time while counting out loud.

{Strong Initial Attitude}: Judy counts out 15 cigarettes.

{Weak Initial Attitude}: Judy counts out 5 cigarettes.

Experimenter: Could you speak up please

Judy: About 15 [5] cigarettes.

Experimenter: So you say you smoke about 15 [5] cigarettes

Judy: Yah

Experimenter: That's on a per day basis

Judy: Yah 15 cigarettes a day

Experimenter: So that's 15 cigarettes on a daily basis. Okay thank you

Judy: Thank you

Setting: Paper and pen in front of Judy on the table.

Experimenter: Okay we are going to proceed with the concentration experiment tomorrow.

Judy: Ihmm

Experimenter: And it's going to take about an hour

Judy: An hour..okay

Experimenter: And for that hour you will be paid 6 dollars

Judy: Okay so 6 dollars

Experimenter:	Yah, you will be paid 6 dollars for the hour
Judy:	Okay
Experimenter:	Ah and like I said the experiment is really going to take place tomorrow
Judy:	Yah okay
Experimenter:	But before you leave today I was wondering if you could answer a question for me
Judy:	Ihmm
Experimenter:	If you were asked to abstain from smoking right now and to refrain from smoking for the next 24 hours...how hard would you find it? I just want you to indicate that on the piece of paper in front of you...you see the scale
Judy:	Yah
Experimenter:	Could you fill that in then
Judy:	Okay
Setting:	Judy looks over the paper and fill in the scale. Note: her answer to this question is not shown
Experimenter:	Thanks a lot
Judy:	Okay
Screen:	Initial Survey
Announcer:	The announcer reads out the initial survey
Experimenter:	Before you leave
Judy:	Huh
Experimenter:	Could you sit down for a moment
Judy:	Yah

Experimenter: I forgot to mention an important part of the experiment

Judy: Yah

Experimenter: Ah, we're going to be asking participants in the smoking part of the experiment to abstain from smoking for 18 hours in order to observe this effect on concentration....so I'm going to ask you to give-up smoking for 18 hours starting now

Judy: You want me to not have a cigarette from now till 18 hours from now

Experimenter: Yes when you come back to the experiment tomorrow

Judy: Ya..okay..uhm

Experimenter: You think you can do this

Judy: Yah..I can do that

Experimenter: You sound redescend...I guess everybody is redescend at this but it's very important for the study...okay...you think you can proceed to give-up right now smoking for 18 hours

Judy: Yah for 18 hours

Experimenter: And would you sign a contract that you will do this

Judy: Yes

Experimenter: You see if you don't it would reck-up our study

Judy: Okay..yah..yah

Experimenter: And you will sign a contract

Judy: Yah

Experimenter: Okay...here's the contract...could you look it over and then sign it

Setting: Experimenter hands Judy the contract

Experimenter:	You'll notice that it say that you promise to refrain from smoking for 18 hours
Judy:	Okay
Experimenter:	Thank you
Judy:	Okay..that's it
Experimenter:	That's it for today
Screen:	Day Two
Setting:	Judy and the experimenter are sitting at the table. The camera is focused on Judy and the experimenter is just off to the side of the table and his face is just outside of view. Judy is now wearing a different shirt
Experimenter:	Nice to see you back here today
Judy:	Hi
Experimenter:	We're going to proceed with the concentration part of the experiment today and essentially I'm going to be showing you some black and white slides with different figures in them and I'm going to ask you to call-out whether there is more black or whit in each slide that I show you. And, I want you to do this with-out thinking.
Judy:	Okay
Experimenter:	Don't try to think too much...just call-out whether you see more black or white.
Judy:	Okay
Experimenter:	Try to concentrate on it...okay
Judy:	Okay
Setting:	The experimenter holds-out a slide and asks Judy to indicate which slide has more black or more white. Approximately 20 to 25 slides are shown in total.

Experimenter:	Thanks a lot
Judy:	That's it
Experimenter:	For now
Screen:	Survey
Announcer:	The announcer reads the post survey.

C. Say-Easy condition

Screen:	Impression Formation Study
Announcer:	The preliminary survey is read (see appendix for content). Note: an approximate 15 second delay is given after each question to standardize the time taken to answer each question.
Screen:	Day One
Setting:	The experimenter and Judy are in the lab. The camera is focused on Judy as the experimenter begins to explain what she will be doing in this experiment.
Experimenter:	Your here for an experiment
Judy:	Right
Experimenter:	You understand that this is an experiment on concentration.
Judy:	Ihmm
Experimenter:	And that we will be having people that are smokers and non-smokers.
Judy:	Yes
Experimenter:	In this the first part of the experiment we need to get an accurate estimate of how much you smoke.
Setting:	Camera angle changes to show that there is a package of cigarettes is on the table next to Judy.
Experimenter:	And so what we are going to ask to do is to ah take that package of cigarettes in front of you there and ah count out the number of cigarettes that feel you smoke a day. Just take them out and count them like one, two, three, four and so on.
Judy:	Take them out?
Setting:	Judy is holding the package of cigarettes in her hand.
Experimenter:	Until you feel that's the number that you smoke a day.

Judy: And take them right out.

Experimenter: Just take them right out of the package, put them down on the table in front of you.

Setting: Judy begins taking the cigarettes out of the package one at a time while counting out loud.

{Strong Initial Attitude}: Judy counts out 15 cigarettes.

{Weak Initial Attitude}: Judy counts out 5 cigarettes.

Experimenter: Could you speak up please

Judy: About 15 [5] cigarettes.

Experimenter: So you say you smoke about 15 [5] cigarettes

Judy: Yah

Experimenter: That's on a per day basis

Judy: Yah 15 cigarettes a day

Experimenter: So that's 15 cigarettes on a daily basis. Okay thank you

Judy: Thank you

Setting: Paper and pen in front of Judy on the table.

Experimenter: Okay we are going to proceed with the concentration experiment tomorrow.

Judy: Ihmm

Experimenter: And it's going to take about an hour

Judy: An hour..okay

Experimenter: And for that hour you will be paid 6 dollars

Judy: Okay so 6 dollars

Experimenter:	Yah, you will be paid 6 dollars for the hour
Judy:	Okay
Experimenter:	Ah and like I said the experiment is really going to take place tomorrow
Judy:	Yah okay
Experimenter:	But before you leave today I was wondering if you could answer a question for me
Judy:	ihmm
Experimenter:	If you were asked to abstain from smoking right now and to refrain from smoking for the next 24 hours...how hard would you find it? I just want you to indicate that on the piece of paper in front of you...you see the scale
Judy:	Yah
Experimenter:	Could you fill that in then
Judy:	Okay
Setting:	Judy looks over the paper and fill in the scale. Note: her answer to this question is not shown
Experimenter:	Thanks a lot
Judy:	Okay
Screen:	Initial Survey
Announcer:	The announcer reads out the initial survey.
Experimenter:	Before you go
Judy:	Yah
Experimenter:	Could you have a seat for a moment
Judy:	Okay, yah

Experimenter: I just wanted to tell you that half the participants in this experiment, that is to say the concentration experiment, must abstain from smoking for 18 hours. However, your on the lucky ones, your in the control group, and you don't have to....

Judy: You mean I don't have to abstain

Experimenter: You don't have to abstain from smoking for 18 hours....so what we are going to do is you tomorrow

Judy: Just come back tomorrow

Experimenter: That's right

Judy: That's it

Experimenter: Yah

Screen: Day Two

Setting: Judy and the experimenter are sitting at the table. The camera is focused on Judy and the experimenter is just off to the side of the table and his face is just outside of view. Judy is now wearing a different shirt

Experimenter: Nice to see you back here today

Judy: Hi

Experimenter: We're going to proceed with the concentration part of the experiment today and essentially I'm going to be showing you some black and white slides with different figures in them and I'm going to ask you to call-out whether there is more black or whit in each slide that I show you. And, I want you to do this with-out thinking.

Judy: Okay

Experimenter: Don't try to think too much...just call-out whether you see more black or white.

Judy: Okay

Experimenter: Try to concentrate on it...okay

Judy:	Okay
Setting:	The experimenter holds-out a slide and asks Judy to indicate which slide has more black or more white. Approximately 20 to 25 slides are shown in total.
Experimenter:	Thanks a lot
Judy:	That's it
Experimenter:	For now
Judy:	Thanks
Experimenter:	Just before you go, I wonder if you could do a favor for me
Judy:	Yah
Experimenter:	It won't take long
Judy:	okay
Experimenter:	I have to leave for a few minutes and ah could you tell the person who is waiting in the hall what the experiment is a ll about and that you stopped smoking and that it wasn't that hard so that they'll participate in the study
Judy:	Oh, okay...so tell them what it's about and that I stopped for 18 hours
Experimenter:	Ya and that it wasn't that hard
Judy:	Oh, okay..sure
Experimenter:	Thanks a lot
Judy:	You're going to come right back
Experimenter:	Yah, I'll be back after to you talk to the person...I just have a phone call.
Judy:	Oh okay
Setting:	The next subject walks in the room

Judy: Hi there

Subject 2: Hi I'm Tracy

Judy: I'm Judy....you're the next person for this experiment.

Subject 2: Ya, that's right

Judy: Okay, I was just in it.. the guy who is in charge has left but he's coming back in a few minutes but he wanted me to tell you a little bit about it

Subject 2: Okay, go ahead...I have no idea what I'm suppose to do

Judy: Yah, well like I'm a smoker

Subject 2: Yah, me too

Judy: Well they asked me to quit smoking for 18 hours and come back and do these concentration tests with these pieces of paper that they showed me

Subject 2: Just a minute you had to quit smoking for 18 hours

Judy: Yah

Subject 2: From when yesterday

Judy: Yesterday when I came they asked me to stop smoking and then come back today

Subject 2: Is that what they are going to ask me to do

Judy: Ya, I think so, ya.

Subject 2: And, did you do it

Judy: Ya...I mean I thought it would be really hard but I ah left here and I didn't have a cigarette and then I went home and I made dinner, you know, watched tv and went to bed...I didn't have any cigarettes

Subject 2:	I don't know I find that hard to believe...I talked to some people that done experiments like this and they said it was practically impossible to stop smoking for that long.
Judy:	No it wasn't actually. Actually it was really easy ...believe it or not.
Subject 2:	It was easy huh...No, I don't know. It sounds like it was really hard to do
Judy:	No I didn't find it very hard at all.
Subject 2:	So you just kept yourself busy and you were able to..
Judy:	Yah afterwhile in fact I didn't even think about it. So any way that's what the study is about.
Subject 2:	So that's what they'll ask me to do
Judy:	I think so yah.
Subject 2:	And you found it easy
Judy:	Yah...yah
Subject 2:	It's good to talk to somebody about it...yah cause I heard it was really hard from other people. I almost didn't come.
Judy:	No I thought it was really easy...so anyway that's what it's about...so...good luck with it
Subject 2:	I guess I'll just wait here till the experimenter gets back.
Judy:	Yah...he should be back any minute now
Second 2:	Well it was nice talking to you.
Judy:	Nice meeting you...good luck.
Screen:	Survey
Announcer:	The announcer reads the post survey.

D. Control condition

Screen:	Impression Formation Study
Announcer:	The preliminary survey is read (see appendix for content). Note: an approximate 15 second delay is given after each question to standardize the time taken to answer each question.
Screen:	Day One
Setting:	The experimenter and Judy are in the lab. The camera is focused on Judy as the experimenter begins to explain what she will be doing in this experiment.
Experimenter:	Your here for an experiment
Judy:	Right
Experimenter:	You understand that this is an experiment on concentration.
Judy:	Ihmm
Experimenter:	And that we will be having people that are smokers and non-smokers.
Judy:	Yes
Experimenter:	Okay we are going to proceed with the concentration experiment tomorrow.
Judy:	Ihmm
Experimenter:	And it's going to take about an hour
Judy:	An hour..okay
Experimenter:	And for that hour you will be paid 6 dollars
Judy:	Okay so 6 dollars
Experimenter:	Yah, you will be paid 6 dollars for the hour
Judy:	Okay

Experimenter:	Ah and like I said the experiment is really going to take place tomorrow
Judy:	Yah okay
Experimenter:	But before you leave today I was wondering if you could answer a question for me
Judy:	ihmm
Experimenter:	If you were asked to abstain from smoking right now and to refrain from smoking for the next 24 hours...how hard would you find it? I just want you to indicate that on the piece of paper in front of you...you see the scale
Judy:	Yah
Experimenter:	could you fill that in then
Judy:	Okay
Setting:	Judy looks over the paper and fill in the scale. Note: her answer to this question is not shown
Experimenter:	Thanks a lot
Judy:	Okay
Screen:	Initial Survey
Announcer:	The announcer reads out the initial survey
Screen:	Day Two
Setting:	Judy and the experimenter are sitting at the table. The camera is focused on Judy and the experimenter is just off to the side of the table and his face is just outside of view. Judy is now wearing a different shirt
Experimenter:	Nice to see you back here today
Judy:	Hi

Experimenter: We're going to proceed with the concentration part of the experiment today and essentially I'm going to be showing you some black and white slides with different figures in them and I'm going to ask you to call-out whether there is more black or whit in each slide that I show you. And, I want you to do this with-out thinking.

Judy: Okay

Experimenter: Don't try to think too much...just call-out whether you see more black or white.

Judy: Okay

Experimenter: Try to concentrate on it...okay

Judy: Okay

Setting: The experimenter holds-out a slide and asks Judy to indicate which slide has more black or more white. Approximately 20 to 25 slides are shown in total.

Experimenter: Thanks a lot

Judy: That's it

Experimenter: For now

Screen: Survey

Announcer: The announcer reads the post survey.

Appendix 2: Preliminary Survey

Subject #:_____

In this study you will be asked to give your impressions of a person named Judy who participated in an experiment. You will be asked to make ratings based on a video recording. People often think it is difficult to draw conclusions about others on the basis of limited information but we have found that they are able to do so if they just give their "gut reaction" to the task. That is, try to rate the person without deep analysis. There are no right or wrong answers! We just want your first impression.

Before we begin the video recording, please take a few moments to answer the following questions:

1) Your age in years: _____

2) Your gender? (please circle) Male Female

3) Do you smoke cigarettes? (please circle): YES NO

4) If you do smoke cigarettes please indicate the how many per day:

Please pay careful attention to Judy and the material presented in the video recording, as you will be asked to recall some of this information.

Appendix 3: Initial Survey

Subject #:_____

PLEASE READ AND ANSWER THE FOLLOWING QUESTIONS

Based on what you have seen in the video presentation, to this point, please rate Judy on the following questions.

Note: Pay careful attention to the scale labels. They may change in both direction and amount.

1) At this point, for how many hours could Judy refrain from smoking without feeling a need for a cigarette?
(Write from 1 hour to 24 hours)

Hours:_____

2) How likely is it that Judy will help (rather than hinder) the researcher with his experiment?

Very Unlikely **Very Likely**

1 2 3 4 5 6 7

4) In response to the researcher's question:

If Judy is asked to abstain from smoking right now and to refrain from smoking for the next 24 hours, Judy would say it was.....?

Very Easy **Impossible**

0 1 2 3 4 5 6 7 8 9 10 11

5) If Judy were asked to quit smoking, she would find it?

Impossible **Very Easy**

1 2 3 4 5 6 7

6) How many cigarettes on average does Judy smoke per day?

Indicate the Number of Cigarettes_____

Please pay careful attention to the details presented in the video recording, as you will be asked to recall some of this information.

Appendix 4: Post Survey

A. Correspondent-actions Condition Post Survey

Subject #:_____

PLEASE READ AND ANSWER THE FOLLOWING QUESTIONS

The experimenter told Judy that the smoking and concentration experiment was over and that psychology department wanted to find out how subjects felt about the experiment in which they participated. He then requested that Judy fill in a short, anonymous questionnaire.

1) On this questionnaire:

If Judy is asked to abstain from smoking right now and to refrain from smoking for the next 24 hours, she would say it was.....?

Very Easy **Impossible**

0 1 2 3 4 5 6 7 8 9 10 11

2) Do think that Judy did better (or worse) on the visual concentration task after abstaining from smoking?

Worse **Better**

1 2 3 4 5 6 7

3) Do you believe that Judy abstained from smoking for the specified time (18 hours)?

Very Unlikely **Very likely**

1 2 3 4 5 6 7

4) How convincing was Judy when she told the new participant that it was easy to abstain from smoking?

Unconvincing **Convincing**

1 2 3 4 5 6 7

5) Did Judy seem relaxed during the concentration exercise?

Tense **Relaxed**

1 2 3 4 5 6 7

6) How persuasive was Judy in terms of getting the new participant to do the study?

Absolutely Unpersuasive **Totally Persuasive**

0 1 2 3 4 5 6 7

7) If Judy were asked to quit smoking forever, Judy would find it....

Impossible **Very Easy**

1 2 3 4 5 6 7

8) Did it appear as though Judy did well on the concentration task?

Poor **Excellent**

1 2 3 4 5 6 7

9) At this point, for how many hours could Judy refrain from smoking without feeling a need for a cigarette?
(Write from 1 hour to 24 hours)

Hours:_____

10) Did Judy believe what she told the new participant?

Disbelieve **Believe**

1 2 3 4 5 6 7

11) Did the $6's play an important role getting Judy to participate in the study?

Unimportant **Important**

1 2 3 4 5 6 7

B. Abstain Condition Post Survey

PLEASE READ AND ANSWER THE FOLLOWING QUESTIONS

The experimenter told Judy that the smoking and concentration experiment was over and that psychology department wanted to find out how subjects felt about the experiment in which they participated. He then requested that Judy fill in a short, anonymous questionnaire.

1) On this questionnaire:

If Judy is asked to abstain from smoking right now and to refrain from smoking for the next 24 hours, she would say it was.....?

Very Easy **Impossible**

0 1 2 3 4 5 6 7 8 9 10 11

2) Do think that Judy did better (or worse) on the visual concentration task after abstaining from smoking?

Worse **Better**

1 2 3 4 5 6 7

3) Do you believe that Judy abstained from smoking for the specified time (18 hours)?

Very Unlikely **Very likely**

1 2 3 4 5 6 7

4) Did Judy seem relaxed during the concentration exercise?

Tense **Relaxed**

1 2 3 4 5 6 7

5) If Judy were asked to quit smoking forever, Judy would find it....

Impossible **Very Easy**

1 2 3 4 5 6 7

6) Did it appear as though Judy did well on the concentration task?

Poor **Excellent**

1 2 3 4 5 6 7

7) At this point, for how many hours could Judy refrain from smoking without feeling a need for a cigarette?
(Write from 1 hour to 24 hours)

Hours:_____

8) Did the $6's play an important role in getting Judy to participate in the study?

Unimportant **Important**

1 2 3 4 5 6 7

C. Say-easy Condition Post Survey

PLEASE READ AND ANSWER THE FOLLOWING QUESTIONS

The experimenter told Judy that the smoking and concentration experiment was over and that psychology department wanted to find out how subjects felt about the experiment in which they participated. He then requested that Judy fill in a short, anonymous questionnaire.

1) On this questionnaire:

If Judy is asked to abstain from smoking right now and to refrain from smoking for the next 24 hours, she would say it was.....?

Very Easy **Impossible**

0 1 2 3 4 5 6 7 8 9 10 11

2) How convincing was Judy when she told the new participant that it was easy to abstain from smoking?

Unconvincing **Convincing**

1 2 3 4 5 6 7

3) Did Judy seem relaxed during the concentration exercise?

Tense **Relaxed**

1 2 3 4 5 6 7

4) How persuasive was Judy in terms of getting the new participant to do the study?

Absolutely Unpersuasive **Totally Persuasive**

0 1 2 3 4 5 6 7

5) If Judy were asked to quit smoking forever, Judy would find it....

Impossible **Very Easy**

1 2 3 4 5 6 7

6) Did it appear as though Judy did well on the concentration task?

Poor **Excellent**

1 2 3 4 5 6 7

7) At this point, for how many hours could Judy refrain from smoking without feeling a need for a cigarette?
(Write from 1 hour to 24 hours)

Hours:_____

8) Did Judy believe what she told the new participant?

Disbelieve **Believe**

1 2 3 4 5 6 7

9) Did the $6's play an important role in getting Judy to participate in the study?

Unimportant **Important**

1 2 3 4 5 6 7

D. Control Condition Post Survey

PLEASE READ AND ANSWER THE FOLLOWING QUESTIONS

The experimenter told Judy that the smoking and concentration experiment was over and that psychology department wanted to find out how subjects felt about the experiment in which they participated. He then requested that Judy fill in a short, anonymous questionnaire.

1) On this questionnaire:

If Judy is asked to abstain from smoking right now and to refrain from smoking for the next 24 hours, she would say it was.....?

Very Easy **Impossible**

0 1 2 3 4 5 6 7 8 9 10 11

2) Did Judy seem relaxed during the concentration exercise?

Tense **Relaxed**

1 2 3 4 5 6 7

3) If Judy were asked to quit smoking forever, Judy would find it....

Impossible **Very Easy**

1 2 3 4 5 6 7

4) Did it appear as though Judy did well on the concentration task?

Poor **Excellent**

1 2 3 4 5 6 7

5) At this point, for how many hours could Judy refrain from smoking without feeling a need for a cigarette?
(Write from 1 hour to 24 hours)

Hours:_____

6) Did the $6's play an important role in getting Judy to participate in the study?

Unimportant **Important**

1 2 3 4 5 6 7

Appendix 5: Pretest Results

A pre-test using the 15 cigarettes and correspondent-actions conditions was conducted on 44 observers enroled in an undergraduate sociology course. The rationale for conducting a pre-test on only this condition was that it contained all of the elements of the experimental conditions. Of the pre-test observers, 13 were male and 31 were female. A weighted means t-tests for independent samples tested the effects of sex on the three dependent variables - ease of abstaining, ease of quitting and hours without a cigarette. Results indicated that sex of the subject had no significant effect on any of the three attitude change measures: 1) ease of abstaining, $t(42) = 1.32$, ns; 2) ease of quitting, $t(42) = -0.49$, ns; or 3) hours without a cigarette $t(42) = 0.38$, ns.

Weighted means t-tests were also performed for the effects of sex on the manipulation check variables: 1) the convincingness of the subject's communication, and 2) whether observers believed that she abstained for the 18 hour time period. There was no effect of sex on believing she abstained ($t(42) = -0.07$, ns) and sex did not affect inference that the communication was convincing ($t(42) = -0.96$, ns). Since no sex difference was detected, equal sampling by gender was not used in the present study.

Observers were asked to indicate the number of cigarettes the subject smoked on a per day basis. Forty-two participants of the total 44 were correct in their response. This result indicated that the videotapes correctly manipulated the number of cigarettes the subject smoked.

Appendix 6: Tables

SOURCE OF VARIATION	df	SUM SQUARE	MEAN SQUARE	F-VALUE	P-VALUE
Initial attitude	1	305.042	305.042	36.74	.0001
Actions	2	217.071	108.535	13.07	.0001
2-Way Interaction Initial attitude * Actions	2	6.350	3.175	0.38	.6827
Subject (Group)	183	1519.362	8.303		
test	1	221.869	221.869	44.796	.0001
test * initial attitude	1	42.573	42.573	8.596	.0038
test * Actions	2	209.176	104.588	21.117	.0001
test * initial attitude * Actions	2	5.363	2.682	0.541	.5828
test * Subject(Group)	183	906.372	4.953		

Table 5.
Repeated measures analysis of how difficult it is to abstain from smoking by treatment group

SOURCE OF VARIATION	df	SUM SQUARE	MEAN SQUARE	F-VALUE	P-VALUE
Initial attitude	1	31.377	31.377	15.500	.0001
Actions	2	21.184	10.592	5.233	.0062
2-Way Interaction Initial attitude * Actions	2	1.026	0.513	0.253	.7764
Subject (Group)	183	370.409	2.024		
test	1	0.622	0.622	0.865	.3563
test * initial attitude	1	12.038	12.038	16.746	.0001
test * Actions	2	24.769	12.384	17.227	.0001
test * initial attitude * Actions	2	3.624	1.812	2.521	.0832
test * Subject(Group)	183	131.554	0.719		

Table 6.
Repeated measures analysis of how difficult it is to quit smoking by treatment group

SOURCE OF VARIATION	df	SUM SQUARE	MEAN SQUARE	F-VALUE	P-VALUE
Initial attitude	1	2034.438	2034.428	31.091	.0001
Actions	2	598.197	299.098	4.571	.0116
2-Way Interaction Initial attitude * Actions	2	35.723	17.862	0.273	.7614
Subject (Group)	183	11974.410	65.434		
test	1	223.199	223.199	7.592	.0065
test * initial attitude	1	28.038	28.038	0.954	.3301
test * actions	2	362.459	181.229	6.164	.0026
test * initial attitude * actions	2	151.895	75.948	2.583	.0783
test * Subject(Group)	183	5380.030	29.399		

Table 7.
Repeated measures analysis of how many hours the subject could refrain smoking without feeling a deep need by treatment group. (N=189)